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NOTES ON THE BIRDS OF NORTH CAROLINA

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DURING 1939 field investigations in North Carolina brought an interesting collection of birds to the United States National Museum, in continuation of a program to obtain needed material of this kind from States bordering on the Appalachian mountain system. The field work was under the direction of W. M. Perrygo, of the Museum staff, assisted by Gregor Rohwer during the spring and by Charles L. Wheeler in the fall. The party left Washington on April 11 and returned on July 22, and departed again on September 14 to continue work through the fall until November 27.

The present report presents briefly the results of a study of the specimens of birds obtained, with some additional observations on species that were not collected. It includes also a few records of other specimens in the National Museum, part of these having been obtained by the writer during recent years on occasional visits to North Carolina. The data are presented for the information of those interested in assembling records on the distribution of birds within this State and are intended to cover only the material mentioned above, without attempt to include additional records from literature except as these are pertinent to some discussion here presented.

Identification of the collection has been interesting because of the area of intergradation found for a number of species that are sepa-

rated into northern and southern subspecies. The western element that appears in a few cases in western Tennessee here is entirely lacking. But an additional factor is found in North Carolina in the ecological influence of the coastal marshes where peculiar forms appear. The extreme southeastern part of North Carolina is especially interesting, and it is suggested to observers that further studies be made on Smith Island, which is related definitely to a more southern region in its flora. As is ordinarily the case the information here assembled is indicative for many species of the necessity for further field work to determine the extent of their distribution.

The friendly cooperation of J. D. Chalk, Commissioner of Game and Inland Fisheries of the Department of Conservation and Development, and of J. D. Findlay, of the same service, provided the necessary permits under which this work was prosecuted. We are also indebted to officials of the national forests lying within the State for their aid. The universally friendly assistance accorded our field party, particularly in the privilege of entering private lands, has been most deeply appreciated. Without this courteous and interested help the work could not have been prosecuted.

The expenses of the party in the field were carried by the income of the W. L. Abbott Fund of the Smithsonian Institution.

So far as possible the itinerary was arranged to cover the different sections of the State during both spring and fall, so as to obtain representative material in both seasons. Necessarily the work in the western mountains was done in the summer, as that is the most interesting period for that region. In view of the extended observations of naturalists for many years in the general vicinity of Asheville our work in the mountains during 1939 was confined to the northern and southern sections, which have been investigated little or not at all.

Work in the field began on April 14, 1939, with Elizabeth City as a base. The principal studies were made in the Dismal Swamp area 7 miles west of South Mills, an old logging railroad and other trails giving access to the swamp. Other work concerned a cypress swamp near Gliden and higher lands of pines and old fields in the vicinity of Sunbury and Weeksville. On April 28 the party transferred to Clinton in Sampson County. The spring migration then had begun in full force, and here many birds were found, particularly in Great Cohaire Swamp and in the vicinity of Roseboro, near Bearskin Swamp and Little Cohaire Swamp. On May 8 Perrygo worked near Raleigh to secure certain birds wanted from that area.

On May 9 the work was transferred to Brunswick County in the extreme southeast, where the men were located at Southport. Here on the Coastal Plain the land was level, with extensive growths of

pine, and there were swampy lands grown with deciduous trees along the streams. Pretty Pond, 10 miles north of Southport, was typical of the woodland ponds of this area, being shallow and having a white sand bottom. Bordering the coast and the mouth of the Cape Fear River are broad reaches of salt marsh. Through the courtesy of the United States Coast Guard, work was prosecuted on Smith Island on May 13 and from May 20 to 22, with results of much interest. The island, as already stated, will repay more careful investigation. On May 24 the party transferred to Rockingham in Richmond County, a cotton- and corn-growing area drained by the Pee Dee River and its tributary streams. There were areas here, particularly in the wooded swamps, of definitely more southern affinity. Considerable collecting was done near the Pee Dee River 11 miles east of Wadesboro. Gregor Rohwer concluded his work with the party here on June 3.

On June 5 Perrygo located at Murphy in Cherokee County for studies in the low mountains of this section. He reached Pack Mountain through Pack Mountain Gap but found that cover on most of the slopes had been burned. Other collections were made from 6 to 8 miles southwest at elevations of 1,450 to 1,750 feet in abandoned fields, areas of small woodland, and stands of heavy pine. On June 17 he moved to Franklin, where permission was obtained through the forest ranger and the game warden to collect in certain regions in the Nantahala National Forest. Birds were taken here on Rocky Ridge and Rocky Bald at elevations ranging from 4,500 to 5,200 feet, mainly in deciduous forest. Other collections were made along a stream where there was a small glade at 3,500 feet, 12 miles east of Hayesville. On July 1 birds were secured in hardwood forest at 4,100 feet on Standing Indian Mountain 15 miles east of Hayesville, and on July 3 Shortoff Mountain was examined. Birds were obtained on July 5 and 6 near Highlands.

The final work of the summer centered at Boone, Watauga County, and extended from July 9 to 20, hampered somewhat by heavy rains. Elk Knob, 7 miles north, offered good collecting at altitudes ranging from 4,800 to 5,500 feet, partly in forest and partly in old farmlands. No spruce was found. Three Tops Mountain near Creston and Patty and Bluff Mountains near West Jefferson were visited also, in addition to work in the valleys near West Jefferson. Bluff Mountain had a small stand of hemlocks in which a winter wren was taken. Ravens were said to nest here formerly. Snake Mountain, 7 miles north of Boone, was visited on July 18 and 19. Perrygo returned to Washington on July 22.

For work in the autumn Perrygo left the Museum on September 14 with Charles L. Wheeler as field assistant, and on September 16

located a base in Madison, N. C. Work here until September 27 centered on the headwaters of the Dan and Haw Rivers; the valley of Hogan Creek, 7 miles northeast of Reidsville, where tracts of heavy timber still remain, was one of the best localities found. A trap line was run on Rockhouse Creek 8 miles northwest, and collections were made on Troublesome Creek 7 miles south. On September 28 the party located in Newton, Catawba County, and from here investigated the wooded bottomlands along the Catawba River, north of Catawba in Catawba County, and west of Statesville in Iredell County, the river being the boundary between these counties. On October 6 the men worked near Longisland, Catawba County.

On October 12 they located at Lakeview Camp west of Engelhard on the south shore of Lake Mattamuskeet. Here were found extensive brackish marshes and great areas of open pine timber with undergrowth of cane and bayberry tangled with smilax. Much of the low woodlands was wet from frequent rains. In eastern Dare County, near Stumpy Point, there are broad areas of savannas with springy turf almost like a heath, over which were scattered small magnolias and abundant dried stalks of sarracenia. In the drainage ditches along the road it was interesting to see stumps and logs of an ancient cypress swamp extending for a long distance, covered by a foot or two of sandy topsoil. Toward Manns Harbor there were heavy stands of gums and magnolia and large growths of pine. J. E. Graf and the writer joined the party here from October 13 to 15. On October 26 Perrygo collected in marshes along the Pungo River near Leechville and on October 28 near Fairfield. Through the courtesy of the Bureau of Biological Survey (now the Fish and Wildlife Service), Department of the Interior, a trap line for mice and shrews was run in the refuge area near the lake.

On October 29 the men located at Bethel and they remained there until November 13. Along Conetoe Creek, 3 miles west, there were fine stands of deciduous forest, while to the northwest of Greenville were great stands of pine. Birds were especially common here, including white-eyed towhees near Greenville. A few specimens were taken near Tarboro and Hassell. The last base for the season was established at Beaufort on November 14. Work here centered in the coastal area near Beaufort, Davis, Mansfield, Williston, North Harlowe, and Atlantic. On November 22 and 24 the men visited Bogue Island opposite Morehead City, on November 23 they crossed Core Sound from Marshallberg to the island facing the Atlantic Ocean, and on November 25 crossed again from the town of Atlantic farther north. The party returned to the Museum in Washington on November 27.



## Family ARDEIDAE

## LEUCOPHOYX THULA THULA (Molina): Snowy Egret

An adult female was taken on Smith Island on May 13.

Sharpe<sup>1</sup> was correct, as indicated by Peters,<sup>2</sup> in placing this heron in a distinct genus *Leucophoyx*, as it differs from *Egretta garzetta*, the type of the genus *Egretta*, in its large crest, in the lack of the elongate plumes on the nape, and in the different form of the feathers of the breast.

## FLORIDA CAERULEA CAERULEA (Linnaeus): Little Blue Heron

An adult male was taken near Southport on May 17. One was seen on Smith Island on May 13.

While Peters<sup>3</sup> has not recognized a southern form of this heron, it is my opinion from examination of a large series that the adult birds in dark plumage of the Antillean area are definitely darker and duller than those of the United States. Comparisons must be made with clean skins, as specimens impregnated with fat become appreciably darker than normal.<sup>4</sup> Skins from the north that are discolored may thus appear as dark as those from the West Indies.

## BOTAURUS LENTIGINOSUS (Montagu): American Bittern

Specimens were taken at South Mills on April 17 and 21 and 6 miles northeast of Beaufort on November 14. One was recorded in the locality last mentioned November 17.

## Family ACCIPITRIDAE

## ACCIPITER STRIATUS VELOX (Wilson): Sharp-shinned Hawk

A young female not quite grown and only recently from the nest was taken July 11 at 3,500 feet on Elk Knob near Meatcamp Creek, 5 miles north of Boone. This bird undoubtedly was hatched nearby, as it is too young to have flown far. Adult males were taken 4 miles south of Manns Harbor on October 25 and near Bethel on November 1. Birds were seen near Statesville on October 9 and Greenville on November 11.

## BUTEO JAMAICENSIS JAMAICENSIS (Gmelin): Eastern Red-tailed Hawk

No specimens were taken but this bird has been so reduced in number that the following sight records are of interest: Southport, May 15 and 20; Suit, Cherokee County, June 7; about 8 miles southwest of Murphy, June 12; Wayah Bald, Franklin County, June 19 and 27;

<sup>1</sup> Bull. Brit. Orn. Club, vol. 3, 1894, p. 39.

<sup>2</sup> Check-list of birds of the world, vol. 1, 1931, p. 113.

<sup>3</sup> Check-list of birds of the world, vol. 1, 1931, p. 107.

<sup>4</sup> See Wetmore, A., Scientific Survey of Porto Rico and the Virgin Islands, New York Acad. Sci., vol. 9, 1927, p. 294.

Rocky Bald and Rocky Ridge 12 and 13 miles west of Franklin, June 20 and 21; Standing Indian Mountain near Hayesville, July 1. Near Engelhard single birds were seen on October 17, 20, and 23.

While shooting, trapping, and the spread of human occupation have been of major importance in the reduction in number of this and other species of hawks, the food factor may also have had far-reaching significance. The red-tail is predominantly a rodent eater, taking rabbits and other small mammals on occasion. In our operations in North Carolina it has developed that there is an astonishing dearth of small mammals through the entire Piedmont area and in the mountains except in limited sections, while in the Coastal Plain small mammals are common only in swampy regions. Our collectors placed lines of traps numbering from 50 to 125 in all areas visited in the State and kept them in constant operation, often with days passing without the capture of a single mouse or shrew. Where the ubiquitous white-footed mice may not be trapped it is obvious that small mammals must be extremely rare. Hawks in consequence here can find little food. Spring and fall burning most probably affects the mammal population seriously, but other factors may operate as well. A part of the present day scarcity of the red-tail and related hawks may be attributed to this factor of food scarcity.

**BUTEO LINEATUS LINEATUS (Gmelin): Northern Red-shouldered Hawk**

This common bird is represented by two specimens, a male (wing 319 mm.) taken near Roseboro May 5, and an adult female (wing 341 mm.) shot on Hogan Creek, 7 miles northeast of Reidsville, on September 19. Both specimens agree in color and size with northern specimens.

**BUTEO PLATYPTERUS PLATYPTERUS (Vieillot): Broad-winged Hawk**

This species was observed near Rockingham on May 30; Murphy, June 16; Hayesville, July 3; and Highlands, July 6.

**Family FALCONIDAE**

**FALCO PEREGRINUS ANATUM Bonaparte: Duck Hawk**

One was recorded 5 miles north of Engelhard on October 20.

**FALCO COLUMBARIUS COLUMBARIUS Linnaeus: Eastern Pigeon Hawk**

Recorded at Leakville, October 12, and Engelhard, October 20.

**FALCO SPARVERIUS SPARVERIUS Linnaeus: Eastern Sparrow Hawk**

A male sparrow hawk was taken on Bogue Island near Morehead City on November 22. Among other records may be mentioned birds

seen near Brunswick on May 12, and on Pack Mountain, Cherokee County, on June 6 and 7, when they must have been on their breeding grounds.

### Family TETRAONIDAE

#### BONASA UMBELLUS TOGATA (Linnaeus): Canada Ruffed Grouse

The grouse seems now rare and restricted in range in North Carolina, as it was seen only at 4,500 to 5,000 feet on Rocky Ridge 13 miles west of Franklin on June 21 and 23 and on Wayah Bald on June 22.

Todd recently has separated the grouse from West Virginia southward as a distinct race,<sup>5</sup> but after comparison of considerable material I fail to find certain characters that will serve to separate birds from this area from *togata*. The color of the tail is definitely variable from rufous to gray both in the mountain birds and in *togata* from northern areas, and with the well-known gray and rufescent color phases in these grouse I see little possibility of color separation on the basis of supposed more brownish color in the southern birds. There is no question that the birds of the southern mountains are different from typical *umbellus*, but it appears to me that they cannot be distinguished successfully from *togata*.

### Family PERDICIDAE

#### COLINUS VIRGINIANUS VIRGINIANUS (Linnaeus): Eastern Bobwhite

Quail were recorded at Sunbury on April 19, in the Dismal Swamp area 7 miles west of South Mills on April 20, at 3,400 feet on Pack Mountain, Cherokee County, on June 7, about 8 miles southwest of Murphy on June 10, at 4,000 feet near West Jefferson on July 14, and near Engelhard on October 19 and 20.

### Family MELEAGRIDIDAE

#### MELEAGRIS GALLOPAVO SILVESTRIS Vieillot: Eastern Turkey

Records obtained for the turkey all pertain to the wilder sections of Macon County. On Wayah Bald, 12 miles west of Franklin, an adult and a dozen young the size of bantam chickens were seen on June 20, and an adult was recorded on June 22. At 4,500 to 5,100 feet on Rocky Ridge, 13 miles west of Franklin, Perrygo saw a gobbler and a hen with young three or four days old on June 21, a gobbler on June 23, and an adult with young on June 26. On the last date he collected a young bird in the down with the wing quills developing and a few contour feathers appearing in the back.

<sup>5</sup> *Bonasa umbellus monticola* Todd, Auk, 1940, p. 392 (Cheat Bridge, W. Va.).

## Family RALLIDAE

## RALLUS LONGIROSTRIS WAYNEI Brewster: Wayne's Clapper Rail

Two adult females were taken near Southport on May 17 and 18. It is currently recognized that the coast of North Carolina marks the transition point between the northern clapper rail (*Rallus l. crepitans*) and the bird of the southeastern coast (*waynei*). Oberholser<sup>6</sup> records specimens from as far south as Beaufort as *crepitans*, remarking that they are intermediate. The two from Southport mark the entrance into the State of the more southern race, as they are definitely darker than northern specimens.

## RALLUS LIMICOLA LIMICOLA Vieillot: Virginia Rail

In fall migration this rail was seen 4 miles west of Manns Harbor on October 25, near Stumpy Point on October 26 (female taken) and 27, and near Leechville, in Hyde County, on October 26.

## Family CHARADRIIDAE

## CHARADRIUS WILSONIA WILSONIA Ord: Wilson's Plover

On Smith Island, where these birds were common, two males were taken on May 13.

While this species has been recognized as a distinct genus currently, I agree with Peters<sup>7</sup> that it is best considered as a member of *Charadrius*. The main character on which it has been separated is the larger, heavier bill, which is not sufficient for generic distinction, particularly since other related species show approach in this regard.

## Family SCOLOPACIDAE

## PHAEOPUS HUDSONICUS (Latham): Hudsonian Curlew

On May 10 Perrygo recorded seven near Southport and collected a male.

Peters<sup>8</sup> has listed the Hudsonian curlew as a geographic race of *Phaeopus phaeopus* of the Old World, but on examination I feel that it is better to consider it a distinct species. There is no question that it is representative of the Palearctic whimbrels, but it stands sufficiently apart from *P. p. phaeopus* and *P. p. variegatus* in definitely darker coloration with no white on the rump and in the heavier marks on the sides and flanks. While the birds from the

<sup>6</sup> Proc. U. S. Nat. Mus., vol. 84, 1937, pp. 352-354.

<sup>7</sup> Check-list of birds of the world, vol. 2, 1934, p. 254.

<sup>8</sup> Check-list of birds of the world, vol. 2, 1934, p. 261. For recognition of *Phaeopus* as a genus see Wetmore, Bull. Mus. Comp. Zool., vol. 63, 1919, pp. 173-179.

two regions approach each other closely, I can find no actual bridging of the gap that exists between them.

**ACTITIS MACULARIA** (Linnaeus): Spotted Sandpiper

A male was taken near Weeksville on April 27.

**TRINGA SOLITARIA SOLITARIA** Wilson: Eastern Solitary Sandpiper

A male was collected at Pretty Pond, 10 miles north of Southport, on May 12. The wing measures 128 mm.

**CATOPTROPHORUS SEMIPALMATUS SEMIPALMATUS** (Gmelin): Eastern Willet

Two were secured near Southport on May 11.

**EREUNETES PUSILLUS** (Linnaeus): Semipalmated Sandpiper

Two males and one female were obtained on Smith Island on May 13.

**CROCETHIA ALBA** (Pallas): Sanderling

A male was taken on November 25 6 miles northeast of Atlantic, where the birds were abundant.

Family **LARIDAE**

**LARUS MARINUS** Linnaeus: Black-backed Gull

One was seen 3 miles southeast of Marshallberg on November 23.

**LARUS ATRICILLA** Linnaeus: Laughing Gull

A male was taken near Marshallberg on November 23.

Family **COLUMBIDAE**

**ZENAIDURA MACROURA CAROLINENSIS** (Linnaeus): Eastern Mourning Dove

Six skins were obtained at the following localities: Near Rockingham, June 1; Southport, May 11; Smith Island, May 22; and near Engelhard, October 16 and 17.

Family **CUCULIDAE**

**COCCYZUS AMERICANUS AMERICANUS** (Linnaeus): Yellow-billed Cuckoo

Taken at Clinton on May 8, Southport on May 11, and 8 miles southwest of Murphy on June 12. Birds were seen at 4,800 feet on Elk Knob near Boone on July 11 and 12. In fall this cuckoo was collected at Reidsville, September 18, and near Catawba, September 28 and 30 and October 4.

## COCYZUS ERYTHROPHthalmus (Wilson): Black-billed Cuckoo

In migration this cuckoo was taken on Smith Island on May 13 and 6 miles north of Southport on May 16. A male was shot at 4,850 feet elevation on Three Tops Mountain 2 miles southeast of Creston on July 13, and a female at 5,100 feet on Elk Knob, 7 miles north of Boone, Watauga County, on July 17. The latter were on their nesting grounds.

## Family STRIGIDAE

## OTUS ASIO ASIO (Linnaeus): Southern Screech Owl

A male taken 6 miles north of Southport, May 15, is typical of the southern form. It measures as follows: Wing 146.5, tail 70.5, culmen from cere 14.2, tarsus 29.3 mm. On December 31, 1933, I found a female dead in the road near the bridge north of Kitty Hawk. This bird has a wing measurement of 162.0 mm., and while a little large it is assigned under the present subspecies as an intermediate, though Leon Kelso has considered it representative of *O. a. naevius*. It is to be expected that the latter race ranges through the highland area of North Carolina, but the actual extent that it may cover will need to be established by specimens.

## STRIX VARIA GEORGICA Latham: Florida Barred Owl

Two specimens available include one that I obtained near Bath on January 16, 1930, and one forwarded from Bethel by Velva Howard on January 22, 1940. Both of these have the bare area on the toes extensive as is characteristic of this southern race. The distribution of this and the northern form in North Carolina remains to be ascertained. It is possible that the southern race extends throughout the Coastal Plain.

## Family CAPRIMULGIDAE

## CAPRIMULGUS CAROLINENSIS Gmelin: Chuck-will's-widow

A male was secured at Southport on May 19 and a female on Smith Island on May 22.

Goatsuckers as a group exhibit a remarkable similarity in color and form, and from external characters it must be conceded that there is reason for including the whippoorwills and chuck-will's-widows and their near relatives of the New World in the genus *Caprimulgus*. Ridgway's endeavors to segregate a number of genera have not proved acceptable, as the characters he found are not certain. I believe, however, that the broad genus *Caprimulgus* as at present constituted will be divided eventually on the basis of osteological characters. At present skeletons of only a few species are available,



but these indicate among other points that the skull of the chuck-will's-widow differs from any others seen in the considerable backward extension of the transpalatine processes. Dr. H. C. Oberholser, in his consideration of some of these matters,<sup>9</sup> through an error in identification has figured a skull of *Nyctidromus* as that of the chuck-will's-widow.

### Family TROCHILIDAE

*ARCHILOCHUS COLUBRIS* (Linnaeus): Ruby-throated Hummingbird

Two taken, both males, come from South Mills, April 19, and 9 miles southwest of Murphy, June 14.

### Family PICIDAE

*COLAPTES AURATUS AURATUS* (Linnaeus): Southern Flicker

This race is represented by four specimens, as follows: Gliden, April 26, female (wing 148.6 mm.); Clinton, May 4, female (wing 142.5 mm.); Southport, May 18, male (wing 145.6 mm.); and finally a male collected near Bethel, November 1 (wing 147.4 mm.). These bear out the current supposition that *auratus* is the breeding form of the eastern part of North Carolina. It will be noted from the bird from Gliden, Chowan County, that this race ranges north into the extreme northeastern section of the State.

*COLAPTES AURATUS LUTEUS* Bangs: Northern Flicker

The flicker population breeding in the extreme western area of North Carolina is to be referred to the northern form, though there is indication of some mixture of southern blood in the extreme southwest. A male taken on June 12 at 1,450 feet elevation 8 miles southwest of Murphy has the wing 151 mm., being thus on the actual borderline between the two geographic races under consideration. I have called it *luteus*. A female shot on June 7 at 3,100 feet on Pack Mountain 14 miles southwest of Murphy measures 153.5 mm., being thus a little larger. Two from Clay County show the same mixture, as a female taken June 29 at 3,700 feet 12 miles east of Hayesville measures 158 mm., while a male from 3,500 feet secured on June 27 is only 149.5 mm. In this latter bird, however, the wing is considerably worn, with the tips of the primaries much broken, so that it is considered *luteus*. An immature male not quite grown was taken here on June 28. Four from 4,800 feet elevation on Elk Knob, 7 miles north of Boone, are *luteus*, the wing in two males being 151.9 and 154.7 mm. and in two females 152.5 mm.

<sup>9</sup> U. S. Nat. Mus. Bull. 80, 1914, p. 6, pl. 2, fig. 1.

In fall and spring the northern flicker is widespread throughout the State, records of specimens being as follows: South Mills, April 19 and 20; Catawba, October 5; Statesville, October 7 and 19; Reidsville, September 18 and 19; Bethel, October 30 and November 1 and 2; Manns Harbor, October 25; Englehard, October 20; and Williston, November 21.

The eastern extension of the breeding range of *luteus* in the northern section of North Carolina remains to be ascertained.

**CCEPHLOEUS PILEATUS PILEATUS (Linnaeus): Southern Pileated Woodpecker**

Five specimens typical of this form were taken, two at South Mills, April 15 and 17, and three near Englehard, October 13 and 14. Three males have the wing 217, 219, and 227 mm. and the culmen from base 42.2, 48.8, and 49.7 mm. In two females the wing is 218 mm. and the culmen from base 41.3 and 44.1 mm. It is probable that *C. p. pileatus* may be the form found throughout the State, since specimens from the mountain area in extreme eastern Tennessee all pertain to the southern race.

Birds were seen near Rockingham on May 30, near Statesville on October 4 and 9, near Bethel on November 1 and 2, and at Williston on November 16.

**CENTURUS CAROLINUS (Linnaeus): Red-bellied Woodpecker**

Outside of the higher mountain area this species seems to be of state-wide distribution. Specimens were taken as follows: Statesville, October 6; Reidsville, September 18 (in immature plumage); Wadesboro, May 27; Rockingham, May 31; Roseboro, May 4; Clinton, May 3; Southport, May 16; Bethel, November 1 and 2; and South Mills, April 15 and 24. The distribution through the mountains of the western part of North Carolina remains to be ascertained.

**MELANERPES ERYTHROCEPHALUS ERYTHROCEPHALUS (Linnaeus): Eastern Red-headed Woodpecker**

Specimens were obtained at South Mills on April 17 and Southport on May 16.

Measurements are as follows: Two males, wing 132.5-135.9, tail 71.6-77.4, culmen from base 28.3-31.0, tarsus 22.3-22.5 mm.; one female, wing 128.2, tail 75.0, culmen from base 27.1, tarsus 20.1 mm.

A female from Southport shot on May 16 still retains part of the juvenal plumage of the previous year on the head and dorsum. From the indication of wear on the wings and tail it is obviously a bird of the previous season.

**SPHYRAPICUS VARIUS VARIUS (Linnaeus): Yellow-bellied Sapsucker**

Birds on their breeding grounds were obtained at 5,100 feet elevation on Rocky Bald, 12 miles west of Franklin, on June 20 (two females) and at 4,500 feet on Rocky Ridge, 13 miles west of Franklin, on June 21 (one female). A male was collected July 1 at 4,100 feet on Standing Indian Mountain, 15 miles east of Hayesville. Elsewhere I have explained my reasons for not recognizing a southern race of this sapsucker.<sup>10</sup>

In fall migration this bird was found on the Catawba River 7 miles west of Statesville, September 30. Specimens were taken here on October 5 and 7. Others were obtained at Bethel, October 30, and near Greenville, November 8.

**DRYOBATES VILLOSUS VILLOSUS (Linnaeus): Eastern Hairy Woodpecker**

A small series of hairy woodpeckers is of some assistance in delimiting the ranges of the two races in the State, though the detailed distribution remains to be established. Perrygo recorded this bird in June on Pack Mountain, Cherokee County, and on Rocky Bald and Rocky Ridge, Macon County, but did not secure specimens, so that doubt attaches to the identity of the birds from this area. This is true in particular of the record from Pack Mountain, since skins from Big Frog Mountain in Polk County, Tenn., a short distance to the west are recorded as *D. v. auduboni*. A female from 3,200 feet elevation 3 miles west of West Jefferson in Ashe County, N. C., has the tips of the primaries badly broken from wear, so that though in existing condition the wing measures only 113.9 mm. it is obvious that the true dimension was appreciably greater. This bird therefore is considered to be *villosus*, particularly since an immature male, fully grown, from 4,300 feet on Bluff Mountain, a mile or more farther west, has the wing 120 mm. and is obviously the larger bird. Two males from the Catawba River 7 and 10 miles southwest of Statesville, shot on October 7 and 9, are on the borderline, but with wing measurements of 118.2 and 118.9 mm. they seem properly allocated with *villosus*. A female from Hogan Creek 7 miles northeast of Reidsville also belongs here, as the wing is not fully grown after molt but still measures 115.6 mm.

**DRYOBATES VILLOSUS AUDUBONI (Swainson): Southern Hairy Woodpecker**

An immature female from 7 miles southeast of Rockingham with the wing fully grown measures 114.3 mm., seeming to be *auduboni*, but the identity of birds from this section should be checked definitely with adult specimens. Other specimens at hand to the eastward are all clearly the southern subspecies, which in the eastern lowlands

<sup>10</sup> Proc. U. S. Nat. Mus., vol. 86, 1939, pp. 193-195.

ranges north throughout the State. A male taken in the Dismal Swamp area near Sunbury, Gates County, on April 21 has the wing 115.3 mm., being obviously small. From near Engelhard a male taken on October 13 measures 113.5 mm., and three females secured on October 13 and 14 register 110.5, 111.7, and 112.0 mm., respectively. In a pair from 6 miles west of Clinton, Sampson County, the male has the wing 115.3 and the female 110.4 mm. A female from Willis-ton, Carteret County, measures 111.6 mm.

**DRYOBATES PUBESCENS MEDIANUS (Swainson): Northern Downy Woodpecker**

On examination of a very good series of birds this form of the downy woodpecker is found to have a much more extensive range in North Carolina than had been supposed. Birds from the mountain area in the west belong here without question. A male taken about June 1890 at Waynesville by P. L. Jouy has the wing 93.7 mm., exceptionally large for this far south. A male from an elevation of 1,450 feet 8 miles southwest of Murphy, June 9, measures 92.0 mm., and a fully grown immature female from nearby, shot on June 14, records 91.5 mm. Another fully grown immature bird, a male, from 5,000 feet elevation on Rocky Ridge, 13 miles west of Franklin, has the wing 92.2 mm. A pair from 4,800 feet on Elk Knob, 7 miles north of Boone, measure 93.5 in the male and 91.4 in the female. Skins from the Catawba River west of Statesville, October 3, 4, and 7, a male with the wing 92.5 and two females, wing 91.6 and 90.5, are also to be placed here. The second of these females verges toward the southern bird, which must range lower down in the valley of this stream. Skins from Hogan Creek 7 miles northeast of Reidsville belong here without question, males taken September 18 and 19, measuring 92.3 and 92.8, and a female, September 18, measuring 91.9 mm. A male from Madison taken on September 21 in the same region measures 92.5 mm. A male that I shot 4 miles west of Winton on December 2, 1934, with the wing 91.4 mm., may indicate that *medianus* goes clear across the northern part of North Carolina to the uplands above the Dismal Swamp area, though this specimen may possibly be a migrant.

There are two others that are assumed to be migrants, as they come from within the range ascribed to *pubescens* but have the size and purer white color of *medianus*, viz, a female (wing 92.8 mm.) from the Dismal Swamp area 7 miles west of South Mills taken on April 14, and a male (wing 91.9 mm.) from North Harlowe, Craven County, secured November 20.

**DRYOBATES PUBESCENS PUBESCENS (Linnaeus): Southern Downy Woodpecker**

The specimens at hand indicate a distribution for this form extending eastward from the valley of the Pee Dee River near the

South Carolina state line through Wilson to the northeastern part of the State. Thus, as a breeding bird, it covers the entire Coastal Plain and the eastern section of the Piedmont.

In the following account wing measurements are given in parentheses for each record. A male (wing 87.2 mm.) was taken 11 miles east of Wadesboro, May 29, and a female (88.8 mm.) 7 miles southeast of Rockingham, May 31. A female (89.9 mm.) comes from 3 miles west of Roseboro, May 6. A male (90.6 mm.) was taken 3 miles west of Clinton May 1, and another male (88.9) 6 miles west in the Great Cohaire Swamp, May 6. The first is a little large, showing an approach toward *medianus*. There is also before me a female (89.8 mm.) from Wilson secured on November 24, 1923. A male (90.2 mm.) from 6 miles northwest of Greenville, November 8, is a little large. A male (88.9 mm.) and a female (89.8 mm.) were shot 7 miles west of Bethel on October 30, and a female (89.6 mm.) 3 miles west, November 1. A male (88.0 mm.), shot April 17, and a female (88.8 mm.), taken April 21, come from the Dismal Swamp area 7 miles west of South Mills. It will be recalled that one larger bird, possibly a migrant, from here is listed as *medianus*. Near Engelhard a male (86.5 mm.) and two females (90.6 and 87.9 mm.) were taken on October 13 and 16. One of the females shows approach in size to *medianus*. Near Bath on January 16, 1929, I collected a male (85.1 mm.) and a female (86.5 mm.) at the mouth of Mixon Creek, and on January 13, 1930, a male (87.3 mm.) at the mouth of Duck Creek. Perrygo secured two females (both with the wing 87.2 mm.) near Williston on November 17 and 21, and a female (86.5 mm.) 6 miles north of Southport on May 15.

It may be expected that migrants of *medianus* will invade this area outside the breeding season.

**DRYOBATES BOREALIS BOREALIS** (Vieillot): Northern Red-Cockaded Woodpecker

In the eastern section of North Carolina this woodpecker is locally common, though it is absent from many localities. It is a quiet bird that may be overlooked by one not familiar with it.

There is one old specimen at hand without date marked as taken by Rev. M. A. Curtis at Raleigh. Perrygo secured two 7 miles southeast of Rockingham, May 30 and June 1, and three 6 and 7 miles northeast of Greenville, November 7 and 8. On January 15, 1930, I collected a pair at the mouth of Duck Creek on the Pamlico River near Bath. On October 13, Perrygo shot two near Engelhard, a locality where the birds were fairly common, and secured three at North Harlowe on November 20. There is an old specimen in the National Museum taken by Elliott Coues at Fort Macon on November 1, 1870. Specimens were secured by Perrygo near Southport on May 15 and 16.

In working over this species two years ago it became apparent to me that birds from central and southern Florida have shorter wings than those from elsewhere in the range, but it seemed desirable to check this with additional material from North Carolina and South Carolina, which is now at hand. The two races will stand as follows:

*Dryobates borealis borealis* (Vieillot):

*Picus borealis* VIEILLOT, Histoire naturelle des oiseaux de l'Amérique septentrionale, vol. 2, 1807, pl. 66, pl. 122 ("dans le nord des États-Unis"; type locality hereby designated as Mount Pleasant, S. C.).

Wing longer.

*Measurements.*—Thirty-one males, wing 116.1–123.7 (119.2<sup>11</sup>), tail 68.2–80.5 (74.7), culmen from base 20.7–22.9 (21.7), tarsus 18.9–22 (19.8<sup>11</sup>) mm.

Thirty-two females, wing 116.0–123.3 (118.9), tail 69.2–81.3 (76.2<sup>12</sup>), culmen from base 19.7–22.6 (21.0<sup>13</sup>), tarsus 18.4–22 (20.6<sup>12</sup>) mm.

The locality indicated by Vieillot for this bird is obviously uncertain, but so far as I have ascertained it has never been corrected. The type locality therefore is designated as Mount Pleasant, opposite Charleston, S. C.

Three names other than *borealis* applied to this woodpecker refer to the northern form. *Picus querulus* Wilson<sup>14</sup> is described as from North Carolina, South Carolina, or Georgia, these States being within the range of typical *borealis*. *Picus vieilloti* Wagler<sup>15</sup> is merely a new name for the adult male of Vieillot's *Picus borealis*. *Picus leucotis* Lichtenstein<sup>16</sup> is a new name for *Picus querulus* Wilson.

The typical form ranges from northern Florida (Overstreet, Milton, Farmdale, Apalachicola, and Welaka) to Texas, Oklahoma, Arkansas, Tennessee, and North Carolina. Specimens reported from Kentucky and Virginia are presumed to belong here on geographical grounds.

As the bird from the peninsula of Florida is without a name it may be known as

*Dryobates borealis hylonomus*, new subspecies:

Similar to *Dryobates borealis borealis* (Vieillot) but wing appreciably shorter.

*Type.*—U.S.N.M. No. 152081, male, from 7 miles southwest of Kissimmee, Fla., collected March 19, 1896, by Robert Ridgway.

*Description.*—Upper parts black, the crown glossy black, with the hindneck, back, and wings faded to fuscous; a red spot on each side

<sup>11</sup> Thirty specimens.

<sup>12</sup> Thirty-one specimens.

<sup>13</sup> Thirty specimens.

<sup>14</sup> American ornithology, vol. 2, 1810, p. 103, pl. 15, fig. 1.

<sup>15</sup> Systema avium, 1827, *Picus*, sp. 20.

<sup>16</sup> Verzeichniss der Doubletten des zoologischen Museums . . . , 1823, p. 12.



of the crown at the back of the head; nasal plumes, a spot on the side of the mandibular ramus, a spot above the eye, and the side of the head beginning as a narrow line behind the lores and spreading widely over the auricular region, white; back and wings barred with strong white bars, which tend to become spots on the wing coverts; rump plain black; under surface white; a broad black stripe extending from the base of the mandible along the side of the neck, diffusing on the sides of the breast into elongated spots of black, which become smaller on the sides; feathers of flanks with partly concealed bars of fuscous; under wing coverts spotted with black; inner webs of primaries and secondaries with large spots of white; under tail coverts with partly concealed, pointed spots of fuscous; two outer rectrices white, with cross bars at the tip and other partial bars across the inner webs of dull black; third rectrix with about half of the distal part of the outer web white; two central rectrices black. Bill black; tarsus and toes deep neutral gray (from dried skin).

*Measurements.*—Twenty-nine males, wing 110.2–117 (113.8), tail 65–78.3 (74.4<sup>17</sup>), culmen from base 20.7–24.0 (22.0), tarsus 18.5–21.5 (20.4) mm.

Eighteen females, wing 111.3–116.7 (113.7), tail 71.5–79.7 (75.4<sup>18</sup>), culmen from base 19.0–23.0 (21.2), tarsus 20.0–21.0 (20.4<sup>19</sup>) mm.

Type, male, wing 112.6, tail 75.0, culmen from base 21.2, tarsus 20.5 mm.

*Range.*—This form is found in central and southern Florida, specimens having been examined from Enterprise, Gainesville, Clearwater, Davista, Tarpon Springs, Seven Oaks, Auburndale, Lake Trafford, Lake Arbuckle, near Fort Bassinger, Driggs Landing, Kissimmee, Lake Hatch-Ne-Haw, Miami, Long Key, and Florida City.

*Remarks.*—Through the range indicated I have seen only one specimen that falls without the dimensions given. This is a male taken at Arnolds, Fla., February 27, 1895, with the wing 119.2 mm. This bird I have considered a straggler of *Dryobates b. borealis*, a wanderer from farther north. I have noted no color differences between the two forms.

## Family TYRANNIDAE

TYRANNUS TYRANNUS TYRANNUS (Linnaeus): Eastern Kingbird

Three specimens were taken at Southport, May 12 and 15, and on Smith Island, May 22. The bird was recorded near Franklin, June 22, and at Meat Camp, Watauga County, July 12.

<sup>17</sup> Twenty-eight specimens.

<sup>18</sup> Sixteen specimens.

<sup>19</sup> Seventeen specimens.

**MYIARCHUS CRINITUS BOREUS** Bangs: Northern Crested Flycatcher

Of this common species skins were preserved as follows: Rockingham, June 1; Roseboro, May 2 and 4; Clinton, May 4; South Mills, April 14 and 17; and Southport, May 12 and 19.

On Smith Island several of these birds were noted, and an adult male was taken on May 22. This bird shows a very definite approach to the southern form *Myiarchus crinitus crinitus* in its slightly larger bill and somewhat darker dorsal color. This one individual for the time being I have marked as an intermediate and have placed it with *boreus*, as I hesitate to establish a State record on this one skin, especially in this case where the differences between the two races concerned are not sharply defined. Further breeding specimens from Smith Island should be obtained to see if they may not properly be classified as true *crinitus*.

**SAYORNIS PHOEBE** (Latham): Eastern Phoebe

Breeding birds of this common species were collected as follows: 8 miles southwest of Murphy, June 8 (adult and fully grown juvenile); 3,500 feet elevation, 12 miles east of Hayesville; and 4,800 feet elevation on Elk Knob, 7 miles north of Boone. In fall it was obtained on the Catawba River near Catawba, October 4; on the same stream 7 and 10 miles west of Statesville, October 2 and 4; on Hogan Creek 7 miles northeast of Reidsville, September 19; and near Greenville, November 6.

**EMPIDONAX VIRESCENS** (Vieillot): Acadian Flycatcher

This widely distributed species was encountered as follows: At 1,450 feet elevation 8 miles southwest of Murphy, June 9; at 3,500 feet elevation 12 miles east of Hayesville, June 26 and 27; 11 miles east of Wadesboro, May 26; near Roseboro, May 2, 5, and 6; Clinton, May 1; Southport, May 19; and Gliden, April 25. The progressive graying from wear in this species with advance through spring into summer is noticeable.

**EMPIDONAX MINIMUS** (Baird and Baird): Least Flycatcher

In the high country 12 miles east of Hayesville this small flycatcher was fairly common, as birds were taken here at 3,500 feet elevation on June 26, 27, and 28 and others were seen on June 30. One was seen at 3,800 feet 2 miles north of Highlands on July 6. An immature female fully grown was obtained at 4,800 feet on Elk Knob, 7 miles north of Boone, on July 18. On July 5, 1936, J. J. Murray and I found this species common between Sturgills and Warrensville, where the birds ranged along streams and in the adjacent groves at elevations as low as 2,800 feet.

**MYIOCHANES VIRENS (Linnaeus): Eastern Wood Pewee**

This common species was recorded as follows: Near Murphy, June 12 and 13; 4,100 feet elevation on Standing Indian Mountain, 15 miles east of Hayesville, July 1; near Franklin, July 1; Wadesboro, May 29; Rockingham, May 30; Reidsville, September 19; Roseboro, May 2; and Southport, May 10 and 11.

**Family ALAUDIDAE****OTOCORIS ALPESTRIS PRATICOLA Henshaw: Prairie Horned Lark**

Apparently this bird has come to breed in North Carolina, since Perrygo observed one near Meat Camp Creek, Watauga County, on July 11. Though he did not collect it, he was certain of the identity.

**Family HIRUNDINIDAE****IRIDOPROCNE BICOLOR (Vieillot): Tree Swallow**

Perrygo secured a male in the edge of the Dismal Swamp, 7 miles west of South Mills, on April 19. On October 14 and 15 I recorded scores circling over Lake Mattamuskeet near Lake Landing. On the latter date on Roanoke Island, a mile north of Manteo, a flock of about 3,000 tree swallows rested in close order on the low plants of a bean field, where they were sheltered somewhat by the nearby pines from a strong, cold wind. Others perched on telephone wires above. Apparently a few minutes earlier the flock had alighted to get the sun on the paved highway where a car or cars passing at high speed had killed about 150, the pavement and the roadside being strewn with their bodies. I picked up 30 or so in good condition, and later most of these were prepared either as skins or skeletons.

**STELGIDOPTERYX RUFICOLLIS SERRIPENNIS (Audubon): Rough-winged Swallow**

The only specimen taken was secured 5 miles east of Weeksville, April 27. Two were recorded 5 miles west of Franklin, June 22.

**HIRUNDO RUSTICA ERYTHROGASTER Boddaert: Barn Swallow**

An adult female was shot near Southport, May 17.

**PROGNE SUBIS SUBIS (Linnaeus): Purple Martin**

A male in immature plumage was taken 5 miles northeast of Southport on May 12.

On July 30, 1941, at the southern end of the long bridge across Albemarle Sound, south of St. Johns, I found about 150 purple martins lying dead on the pavement, where they had been killed that

morning by passing cars. Apparently the birds had gathered in the sun on the bridge and on the approach to meet disaster in the same manner as described above for the tree swallows.

### Family CORVIDAE

#### CYANOCITTA CRISTATA CRISTATA (Linnaeus): Florida Blue Jay

Specimens of the blue jay were taken at the following localities: 4,500 feet elevation on Rocky Ridge, 13 miles west of Franklin, June 22; Catawba River, 7 miles west of Statesville, September 29 and 30; 7 miles southeast of Rockingham, May 31; near Reidsville, September 20 and 25; Roseboro, May 8; Bethel, November 1; and Southport, May 11.

This entire series of 15 skins is identified as the southern form, both on size and color, so that apparently this is the breeding bird throughout most of if not all the State. The wing in males taken ranges from 123.6 to 130.7 mm. and in females from 126.9 to 129.1. The birds seen are definitely dark in color above with restricted white markings in the wings. One bird from Bethel and two from Reidsville have the white more extensive and appear somewhat less purplish but are small in size. They are considered to be intermediate.

Examination of this and other material makes it apparent that Oberholser<sup>20</sup> is correct in extending the range of the southern form of the blue jay to the north so far that it covers the type locality of *cristata*. The bird currently called *florincola* then becomes *Cyanocitta c. cristata*, while the northern race will be known as *Cyanocitta c. bromia* Oberholser.

The northern blue jay should come as a migrant to North Carolina, though no specimens are at hand to substantiate this, but whether the northern form nests in the State apparently is a matter still to be established. It may occur in the higher mountains of the northwest. In fact, Oberholser,<sup>21</sup> in a review of the races of the blue jay cited above, has listed as the northern form a specimen taken on July 11, 1895, on Roan Mountain. This specimen, in the National Museum, is a young female only recently from the nest, with the juvenile plumage only partly replaced by first fall dress. I am inclined to believe that it might be more properly considered an intermediate, a question, however, to be settled only by additional specimens. A jay secured by Perrygo on September 23, 1937, on that part of Roan Mountain found in Tennessee is definitely intermediate but seems nearer to the southern form. Three collected by J. J. Murray at Blowing Rock on August 7 and 18, 1937, which I have examined, are also young birds in process of attaining fall plumage, and like Dr. Oberholser's

<sup>20</sup> Auk, 1921, pp. 83-89.

<sup>21</sup> Loc. cit., p. 88.

skin from Roan Mountain they are in too poor condition to warrant establishing a State record without supporting evidence. They appear intermediate. The wing measurements in two females are 126.6 and 127.3 mm. and in one male 128.7 mm., and in the Roan Mountain, N. C., skin, a female, 128.4 mm. I am not certain, however, that the wing is fully grown in any of these.

**CORVUS CORAX PRINCIPALIS** Ridgway: Northern Raven

Perrygo recorded this species in small numbers on Roan Mountain, N. C., September 11 and 12, 1937, and observed one on Snake Mountain, Watauga County, July 18, 1939. He was told that up to fifteen years or so previous ravens had nested regularly on Bluff Mountain north of Boone but had left this locality.

**CORVUS BRACHYRHYNCHOS BRACHYRHYNCHOS** Brehm: Eastern Crow

As a migrant this northern race, marked by larger size, comes into North Carolina, though its comparative abundance in relation to the southern form remains to be ascertained. In a considerable series in the National Museum there are two male *brachyrhynchos* (wing 325, 312, culmen from base 55, 52 mm.), and one female (wing 310, culmen from base 50 mm.) taken January 7, 1914, near Currituck Sound.

**CORVUS BRACHYRHYNCHOS PAULUS** Howell: Southern Crow

North Carolina is in the northern section of the range of this rather poorly marked form, and from a small number of breeding specimens the nesting birds that I have seen all appear best referred to *paulus*. In a pair from the edge of the Dismal Swamp 7 miles west of South Mills the male has the wing 308 and the culmen from base 51.6 mm., while in the female these measurements are 292 and 48.3 mm., respectively. A female from Wadesboro, May 26, measures 285 and 44.8 mm., and one from Statesville, October 4, has the wing 280 and the culmen from base 49.1 mm. A female from Engelhard, October 23, measures 299.5 and 51.8, and a male from Greenville 297 and 50.3 mm. A male taken at Asheville on May 3, 1932, is definitely *paulus*, with the wing 280 and the culmen from base 47 mm.

The only anomalous specimen in the breeding series is a male, taken 8 miles southwest of Murphy, in which the wing is 316 and the culmen from base 50.5 mm. This specimen is of uncertain status but it is probably an intermediate specimen, as birds from the mountains of northeastern Tennessee and southwestern Virginia belong with *paulus*. Further breeding specimens should be obtained in the mountain area of western North Carolina.

In addition to the skins listed we have a male from Asheville shot November 1, 1930 (wing 297), and a series from Currituck Sound taken January 7, 1914, that includes 5 males and 9 females.

**CORVUS OSSIFRAGUS Wilson: Fish Crow**

This common species in the coastal area is represented by skins from Southport, May 11, 19, and 20, and Engelhard, October 24. In addition Perrygo observed it at Sunbury, April 19; in the Dismal Swamp area 7 miles west of South Mills, April 21 and 24; in the Bear Skin and Little Cohaire Swamps near Roseboro, April 24 and May 2; and on Smith Island, May 13. I found a number near Bath on the Pamlico River on January 15 and 17, 1929, and recorded them as fairly common at Manteo on March 31, Nags Head on April 1, and Atlantic on April 2, 1934. On October 15, 1939, I observed a number at Stumpy Point.

**Family PARIDAE**

**PENTHESTES CAROLINENSIS CAROLINENSIS (Audubon): Carolina Chickadee**

The typical form of the Carolina chickadee, marked by darker gray on the back and duller buffy brown on sides and flanks, extends across the southern part of the State from the mountains to the coast. Records based on specimens are as follows: Murphy, June 8 (juvenile) and 12; 5,100 feet elevation on Rocky Bald, 12 miles west of Franklin, June 20; 3,500 feet elevation 12 miles east of Hayesville, June 28; Catawba, September 29; Catawba River, 7 miles west of Statesville, September 30; Rockingham, May 30; 11 miles east of Wadesboro, May 26; Engelhard, October 13 and 23; Southport, May 15 and 16 (including one juvenile).

Specimens from Engelhard are somewhat intermediate but appear nearer the southern race.

**PENTHESTES CAROLINENSIS EXTIMUS Todd and Sutton: Northern Carolina Chickadee**

This recently described northern race extends into the northern part of the State, its range in the northwest remaining to be ascertained.

Specimens have been examined from the following points: Hogan Creek, 7 miles northeast of Reidsville, September 18; Troublesome Creek, 7 miles south of Reidsville, September 25; Conetoe Creek, 3 miles west of Bethel, November 2; Clinton, May 1; and the Dismal Swamp area, 7 miles west of South Mills, April 14, 15 and 17.

**BAEOLOPHUS BICOLOR (Linnaeus): Tufted Titmouse**

From the mountains to the lowland swamps of the coast this is one of the common birds of North Carolina wherever there are wood-



lands. Specimens were obtained as follows: Murphy, June 14; at 5,000 and 5,100 feet on Rocky Bald; 12 miles west of Franklin, June 23 and 26; Statesville, September 29 and October 5; Wadesboro, May 29; Roseboro, May 2; Clinton, May 1; Bethel, October 30 and November 1; South Mills, April 14 and 24; and Southport, May 10 and 12. It was observed at 4,800 feet on Elk Knob, 7 miles north of Boone on July 12 and at 4,600 feet on Three Top Mountain, 2 miles south of Creston on July 13.

### Family SITTIDAE

#### **SITTA CAROLINENSIS CAROLINENSIS** Latham: White-breasted Nuthatch

Through North Carolina there is a definite area of intergradation between the northern and southern races of this widely distributed bird, of which the northern form is paler dorsally and slightly larger and the southern one darker and a little smaller. In addition the female of typical *carolinensis* has the black of the crown partly concealed by an edging of gray, a marking most evident in fall and winter as in occasional individuals in spring and summer this disappears. In the southern bird the crown is definitely black in both sexes.

Birds from the northern section of the State belong definitely with the northern form, though in some there is more or less indication of intergradation. Birds ascribed to the northern subspecies were taken as follows: Hogan Creek, 7 miles northeast of Reidsville, September 18 (male somewhat darker, female with crown distinctly gray); 6 miles northwest of Greenville, November 8; Conetoe Creek, 7 miles northwest of Bethel, October 30 (somewhat intermediate); Gliden, April 25; Dismal Swamp area, 7 miles west of South Mills, April 14 and 17 (male and female, both intermediate).

#### **SITTA CAROLINENSIS ATKINSI** Scott: Florida Nuthatch

The southern form is represented by skins from the southern section of the State, some of which, again, are more or less intermediate. In a pair taken 8 miles southwest of Murphy, June 13, at an elevation of 1,450 feet the male is definitely intermediate in color and a little large (wing 89.2 mm.), while the female is duller gray and has the crown black. A male and a female taken at 4,100 feet on Standing Indian Mountain, 15 miles east of Hayesville are also intermediate in depth of gray color, but here again the female has a black head. A pair from 7 miles southeast of Rockingham, May 31, seem to belong more definitely with the southern bird, as do an adult male and a juvenile female from near Roseboro, taken on May 5.

The range of the two subspecies remains to be worked out in detail. Undoubtedly many specimens will be found that can be allocated only arbitrarily.

**SITTA PUSILLA PUSILLA Latham: Brown-headed Nuthatch**

This interesting nuthatch is locally common through wide areas in the eastern and southern part of the State, seemingly more abundant on the Coastal Plain than farther inland. Specimens at hand come from the following localities: 7 miles southeast of Rockingham, May 30 and June 1; Wake Forest, April 11, 1885 (from Frank Blake Webster); 6 miles northwest of Greenville, November 9; near Bath (mouth of Mixon Creek, January 16, 1929, and mouth of Duck Creek, January 13, 1930, taken by A. Wetmore); Engelhard, October 13 and 19; North Harlowe, November 20; and Southport, May 10, 12, and 15.

The northern race of this bird, which extends in its range from Georgia northward to Maryland and west into eastern Texas, when compared with *Sitta pusilla caniceps* Bangs of Florida averages slightly larger, there being, however, some overlap in size. The northern bird in addition has the gray of the back slightly darker, and the brown of the head darker with the paler edgings on the crown feathers, where present, distinctly darker.

The southern race, from material in the U. S. National Museum, is found throughout Florida, including the northwestern extension of the State. Birds from St. Marys in extreme southeastern Georgia belong also to this form.

**Family CERTHIIDAE****CERTHIA FAMILIARIS AMERICANA Bonaparte: Brown Creeper**

Specimens were taken at Statesville on October 7 and Engelhard on October 18.

**Family TROGLODYTIDAE****TROGLODYTES AËDON AËDON Vieillot: Eastern House Wren**

The four specimens of the house wren taken were obtained near Engelhard, in Hyde County, on October 16, 20, 21, and 24. All belong to the typical form. The darker, grayer, and less rufescent Ohio house wren *Troglodytes aëdon baldwini* has been recorded from a number of localities in North Carolina.<sup>22</sup>

**NANNUS HIEMALIS HIEMALIS (Vieillot): Eastern Winter Wren**

Specimens of this migrant race were secured at Engelhard, October 23, and near Bethel, October 30. I collected one at the mouth of Mixon Creek near Bath on January 16, 1929.

<sup>22</sup> Ohio Journ. Sci., vol. 34, Mar. 1934, p. 92.

**NANNUS HIEMALIS PULLUS** Burleigh: Southern Winter Wren

It is interesting to find two of these birds collected on Conetoe Creek 3 miles west of Bethel on November 1, indicating a migration away from their mountain breeding range.

An adult male taken at 4,300 feet on Bluff Mountain 4 miles west of West Jefferson is an abnormal individual, as it is much paler than the average for the southern bird, being very similar to typical *hiemalis*. It is considered an aberrant specimen.

One was recorded singing at 4,500 feet on Rocky Ridge 13 miles west of Franklin on June 21.

**THRYOMANES BEWICKI BEWICKI** (Audubon): Bewick's Wren

Three juvenile individuals only recently from the nest were obtained at 4,500 and 4,800 feet on Elk Knob, 7 miles north of Boone, July 11 and 12, and at 4,600 feet on Three Tops Mountain, 2 miles southeast of Creston, July 13. The species was recorded near West Jefferson on July 14. It was fairly common in the localities noted.

**THRYOTHORUS LUDOVICIANUS LUDOVICIANUS** (Latham): Carolina Wren

Specimens of this species were secured at 1,450 feet elevation 8 miles southwest of Murphy, June 10 and 13 (the latter recently from the nest); at 3,500 feet 12 miles east of Hayesville, July 4; at 4,000 feet near Highlands, July 5; and 4,300 feet elevation on Three Tops Mountain, near Creston, July 13, the last three being records of some interest as indicating altitudinal distribution. Elsewhere the bird was obtained as follows: On the Catawba River 3 miles north of Catawba, September 29, and 10 miles southwest of Statesville, October 6; Reidsville, September 22; Bethel, October 31; Roseboro, May 2; Clinton, May 3; South Mills, April 15, 18, and 21; and on Smith Island, May 13 and 22 (young recently from the nest).

**TELMATODYTES PALUSTRIS PALUSTRIS** (Wilson): Long-billed Marsh Wren

A series of 14 skins of the long-billed marsh wren presents a truly remarkable picture, since in it there are represented four distinct subspecies, two of them certainly breeding and the other two migrant, though possibly one of these last may nest in the northeastern coastal area.

In the specimens collected there is one example of the typical race taken 8 miles southwest of Stumpy Point in Dare County, October 20. This bird comes from the breeding area of *T. p. waynei* and is evidently a migrant.

Hellmayr<sup>23</sup> has united *Cistothorus* and *Telmatodytes* in one genus on the grounds that *Cistothorus apolinari* Chapman from the Suba Marshes near Bogotá is a connecting link between the two. In this he has been deceived by the gross appearance of the South American bird, a most remarkable species, which is, relatively speaking, a giant in its group. The much larger size of *apolinari* is deceptive, as in the relative proportions of its large, heavy bill, in the graduation of the tail, in the distal tapering of the rectrices, and in the relative length of the exposed culmen compared with the middle toe it agrees with *Cistothorus stellaris* and differs as does that species from *Telmatodytes palustris*. Under the circumstances it seems to me necessary to recognize two genera, unless we proceed to recast our ideas of generic alliance, in which case these and many others would attain the value of subgenera. *Cistothorus apolinari* in its very large, strong feet and tarsi differs decidedly from all the other marsh wrens, and on this basis it possibly may be separated as a third generic or at least subgeneric group when more is known about it.

**TELMATODYTES PALUSTRIS WAYNEI** Dingle and Sprunt<sup>24</sup>: Wayne's Marsh Wren

This is a strongly marked form, characterized by very dark color above, with the black extensive and the browns dark and with more or less barring on sides and under tail coverts. It was described from a migrant bird at Charleston with the indication that it was the breeding bird of the coastal area of North Carolina, a supposition that has proved true.

A mile north of Engelhard these birds were common in October, so that Perrygo and I secured four on October 14 in marshes near the highway leading north. Perrygo collected another 7 miles southwest of Stumpy Point, October 17, and one 6 miles northeast of Beaufort, November 18. More interesting is an adult female obtained 2 miles northeast of Southport May 17. This bird is entirely typical of its race though taken a mile distant from *T. p. griseus*, which breeds here in the coastal region. It is probable that it is a migrant in passage from the south, but possibly here is a point where the ranges of the two forms in question join.

Burleigh,<sup>25</sup> late in May 1932, found *waynei* in the coastal area from Swanquarter northward and reports that no marsh wrens were encountered at Beaufort. The matter is one that should be carefully investigated.

<sup>23</sup> Field Mus. Nat. Hist., Zool. Ser., vol. 13, Nov. 15, 1934, p. 114.

<sup>24</sup> *Telmatodytes palustris waynei* Dingle and Sprunt, Auk, Oct. 1932, p. 454 (Mount Pleasant, S. C.).

<sup>25</sup> Auk, 1937, p. 457.

**TELMATODYTES PALUSTRIS GRISEUS (Brewster): Worthington's Marsh Wren**

This race, in very gray color with entire absence of bright brown, is so different from the other marsh wrens with which we are concerned here as to be distinguished at a glance. An adult female obtained a mile northeast of Southport on May 19 and four taken on Smith Island opposite on May 21 all belong to this race. Evidently here is the northern limit of this interesting bird. Attention is called again to the fact that the one from Southport was taken a mile south of the point where a skin of *T. p. waynei* was secured.

The details of the occurrence of the four marsh wrens here listed furnish a fascinating problem for investigation by local ornithologists.

**TELMATODYTES PALUSTRIS ILIACUS Ridgway: Prairie Marsh Wren**

I collected an adult male in a marsh a mile north of Engelhard on October 14 in an area where *T. p. waynei* was abundant. This migrant from the northern interior regions is brighter, lighter brown on the back and flanks but is otherwise like typical *palustris*. There is another specimen in the National Museum taken at Fort Macon, N. C., in September 1869.

**CISTOTHORUS PLATENSIS STELLARIS (Naumann): Short-billed Marsh Wren**

In fall this interesting wren was common locally in fresh-water marshes in the coastal area, being found in company with the other marsh wrens. At Engelhard on October 14 I noted that they were as common as the long-billed marsh wrens. Specimens were taken here on October 14, 16, and 24. Perrygo took four more 6 miles northeast of Beaufort on November 15 and 18. Howell and Burleigh<sup>26</sup> found half a dozen pairs of the short-billed marsh wren near Pungo, Va., a short distance north of the North Carolina line from May 17 to 20, 1932, and believed that they may have nested there. Search for them should be made in the Currituck Sound area in North Carolina in the nesting season.

The smaller forms of *Cistothorus* of Central and South America seem so closely allied to our familiar bird of the north that it appears that Hellmayr<sup>27</sup> is justified in considering all as geographic races of one species. The oldest name for the group as a whole is *platensis* of Latham so that the bird of the A. O. U. Check-list will become *Cistothorus platensis stellaris*.

<sup>26</sup> *Auk*, 1934, p. 250.

<sup>27</sup> *Field Mus. Nat. Hist., Zool. Ser.*, vol. 13, pt. 7, Nov. 15, 1934, pp. 114-123.

## Family MIMIDAE

**MIMUS POLYGLOTTOS POLYGLOTTOS (Linnaeus): Eastern Mockingbird**

The mocker was obtained as follows: Weeksville, April 27; Engelhard, October 16; Morehead City, November 24; Marshallberg, November 23; and Southport, May 18. It was seen on Smith Island, May 13; near Reidsville, September 19 and 23; near Bethel, November 1; and at Franklin, June 29.

**DUMETELLA CAROLINENSIS (Linnaeus): Catbird**

Of this abundant species specimens were obtained as follows: Murphy, June 8 and 9; Hayesville, June 26; Catawba, September 30; 4,600 feet elevation on Elk Knob, 7 miles north of Boone, July 19; Reidsville, September 23 and 25; Roseboro, May 4; Clinton, May 3 and 4; Bethel, November 1; Stumpy Point, October 17; Bogue Island near Morehead City, November 24; and South Mills, April 19.

**TOXOSTOMA RUFUM RUFUM (Linnaeus): Eastern Brown Thrasher**

Of state-wide distribution, this interesting bird was obtained at the following localities: Murphy, June 9 and 10; Hayesville, June 26 and 27; 4,000 feet elevation on Patty Mountain, near West Jefferson, July 14; Statesville, October 4 and 5; Reidsville, September 23 and 26; Clinton, May 6; and Southport, May 11. All these check in size with the dimensions of the eastern race.

## Family TURDIDAE

**TURDUS MIGRATORIUS MIGRATORIUS Linnaeus: Eastern Robin**

The larger, darker eastern robin breeds in the higher mountains of western North Carolina in a more or less intermediate form whose distribution at present is not fully understood. In part of the area at least it intergrades or mingles with the southern race. In the present collection there is one male, taken on June 22 at 5,000 feet on Rocky Ridge, 13 miles west of Franklin, that represents the eastern bird, as it is dark in color. Though the wing measures only 126 mm. the tips of the primaries are broken and worn, so that the proper length is perhaps 2 mm. more. A male taken at Statesville on October 9 has the wing 129.3 mm., and one from Reidsville measures 130.1 mm. Two other winter birds were shot at Greenville on November 3 and 9, and a very large female was collected in the edge of the Dismal Swamp near South Mills April 14 (wing 133.4 mm.).

In January 1929 I recorded great flocks of robins roosting and feeding in the wooded swamps along the Pamlico River near Bath, and on January 16 I shot two, one of which was the typical form.



During winter the northern form should be common in North Carolina.

**TURDUS MIGRATORIUS ACHRUSTERUS** (Batchelder): Southern Robin

This is the breeding robin of North Carolina outside the mountain area and seemingly has increased in numbers in recent years. As already indicated there is mixing between this race and the typical one in the mountain areas of the southeastern Appalachian region in a manner not yet fully understood. Two females from Highlands, taken July 5 at 4,000 feet, are typical of the southern bird in size and color, as are also three secured at from 4,550 to 4,800 feet on Elk Knob, 7 miles north of Boone, July 11 and 18, and one from 4,300 feet on Bluff Mountain, 4 miles west of West Jefferson, collected July 15. Dr. J. J. Murray has sent me a female taken at Blowing Rock on August 7, 1940. Further study is desirable to ascertain the ranges of the two subspecies of robin throughout the mountain area.

Considerable variation in color is evident in four other breeding birds. A female from near Raleigh (the type locality of the race), taken on May 8, is quite dark on the breast but paler above and has the wing 119 mm. In a pair taken in Harnett County 20 miles southwest of Raleigh on May 8 the male is dark (wing 124.4) and the female pale (wing 114.2). A male shot on May 6 at Clinton is very dark above and below (wing 117.4).

Other skins come from Reidsville, September 22; near South Mills, April 15 and 21; and Marshallberg, November 23. I secured one at the mouth of Mixon Creek near Bath on January 16, 1929.

**HYLOCICHLA MUSTELINA** (Gmelin): Wood Thrush

Specimens were secured as follows: 9 miles southwest of Murphy, June 16; 12 miles east of Hayesville, June 28; Catawba, October 3; Statesville, October 9; Reidsville, September 20 and 23; Rockingham, May 30; Clinton, May 6; and Gliden, April 26.

**HYLOCICHLA GUTTATA FAXONI** Bangs and Penard: Eastern Hermit Thrush

Specimens were obtained at South Mills, April 17, 19, and 21; Bethel, November 4; and Greenville, November 7.

**HYLOCICHLA USTULATA SWAINSONI** (Tschudi): Eastern Olive-backed Thrush

The three collected were obtained at Clinton, May 1, Statesville, October 3, and Bethel, October 30.

**HYLOCICHLA MINIMA MINIMA** (Lafresnaye): Gray-checked Thrush

In spring, male and female were taken near Clinton, May 6. During the fall migration specimens were obtained at Reidsville, September

20 and 24; the Catawba River near Statesville, October 3; and Catawba, October 4. These all represent the larger form, now known as *minima*.<sup>28</sup>

**HYLOCICHLA MINIMA BICKNELLI** Ridgway: Bicknell's Thrush

A male was collected near Southport, May 12. In this specimen the wing measures 95.1 mm., so that it is clearly representative of the smaller form.

**HYLOCICHLA FUSCESCENS FUSCESCENS** (Stephens): Veery

Migrants were collected at Clinton on May 1 and at Roseboro on May 2. On the breeding grounds two males were taken at 5,000 and 5,100 feet on Rocky Bald, 13 miles west of Franklin, on June 20 and 23. On the latter date a juvenile bird recently from the nest was obtained. Birds were seen at 5,200 feet on Rocky Ridge, 13 miles west of Franklin, on June 22; at 3,700 feet, 12 miles east of Hayesville, June 27, 28, and 29; and near Highlands, July 5 and 6. A female was collected at 3,200 feet 3 miles west of West Jefferson on July 14, and another at 5,500 feet on Elk Knob, 7 miles north of Boone, July 10.

**SIALIA SIALIS SIALIS** (Linnaeus): Eastern Bluebird

Records for this pleasing bird are as follows: Murphy, June 10; Rockingham, June 2; Roseboro, May 2; Greenville, November 8 and 9; Gliden, April 26; Engelhard, October 16; Beaufort, November 20; Davis, November 18; and Southport, May 10 and 16.

Family SYLVIIDAE

**POLIOPTILA CAERULEA CAERULEA** (Linnaeus): Blue-gray Gnatcatcher

The gnatcatcher is an elusive species that is easily overlooked after leaves cover the trees in spring. Perrygo and his companions obtained specimens as follows: At 1,450 feet, 9 miles southwest of Murphy, June 16; Rockingham, May 30 and June 1; Roseboro, May 2; Clinton, May 3; Gliden, April 25; South Mills, April 21; and Smith Island, May 22.

**REGULUS SATRAPA SATRAPA** Lichtenstein: Eastern Golden-crowned Kinglet

Near Engelhard, on October 23, when two were collected, these birds were common. Another was secured at Greenville on November 7. There is an adult male in the Museum collection obtained on the summit of Roan Mountain, N. C., on July 26, 1890, by P. L. Jouy.

**CORTHYLIO CALENDULA CALENDULA** (Linnaeus): Eastern Ruby-crowned Kinglet

Taken at Statesville on October 7 and near Bethel on November 2.

<sup>28</sup> See Wetmore, A., Proc. U. S. Nat. Mus., vol. 88, 1940, p. 552.

## Family BOMBYCILLIDAE

BOMBYCILLA CEDRORUM Vieillot: Cedar Waxwing

On Smith Island Perrygo found a flock of seven on May 20 and secured two females. One has a very tiny tip of wax on one of the rectrices, in addition to well-developed red points on the secondaries. The other has no trace of these markings. A male was collected 12 miles east of Hayesville at 3,500 feet elevation on July 1.

## Family LANIIDAE

LANIUS LUDOVICIANUS LUDOVICIANUS Linnaeus: Loggerhead Shrike

The five shrikes taken all belong to the darker southern form. Breeding birds were obtained at Autryville and Roseboro on May 2 and Rockingham on May 30. In fall, one was shot at Tarboro on November 3 and one at Williston on November 17.

## Family VIREONIDAE

VIREO GRISEUS GRISEUS (Boddaert): White-eyed Vireo

Skins were obtained as follows: Rockingham, May 30 and June 1; Roseboro, May 3; Clinton, May 3; South Mills, April 14 and 15; Southport, May 12; and Smith Island, May 13. These belong to the typical form.

VIREO FLAVIFRONS Vieillot: Yellow-throated Vireo

Taken 8 miles southwest of Murphy on June 12.

VIREO SOLITARIUS ALTICOLA Brewster: Mountain Vireo

In the mountains of western North Carolina this race is common, and at times it ranges to low elevations, as male and female were taken at 1,750 feet elevation 6 miles southwest of Murphy on June 9. At 4,100 feet on Standing Indian Mountain, 15 miles east of Hayesville, a male and a juvenile bird fully grown were collected on July 1. A male comes from 5,000 feet on Rocky Bald, 13 miles west of Franklin, June 23. Near Highlands, the type locality, Perrygo collected four males and a female on July 5 and 6 between 3,800 and 4,000 feet elevation. In the northwest two were taken at 4,800 feet on Elk Knob on July 11 and 12, and two at 5,000 feet on Snake Mountain on July 18, both localities lying about 7 miles north of Boone. One was shot at 4,300 feet on Bluff Mountain, 4 miles west of West Jefferson, on July 15.

Measurements from this series are as follows: Males (11 specimens), wing 75.7-83.2, tail 52.0-55.0, culmen from base 13.1-14.8, tarsus 18.2-19.6 mm.

Females (2 specimens), wing 77.8–79.1, tail 52.3–53.3, culmen from base 13.9–14.2, tarsus 18.9 mm.

**VIREO OLIVACEUS (Linnaeus): Red-eyed Vireo**

This, one of the common woodland species of the eastern United States, was secured at the following localities: 3,500 feet elevation, 12 miles east of Hayesville, June 27 and 28; 4,300 feet elevation on Three Tops Mountain, 2 miles southeast of Creston, July 13; Statesville, October 7; Wadesboro, May 26; Rockingham, May 31; Reidsville, September 18 and 26; Roseboro, May 2; Clinton, May 3; South Mills, April 20 and 24; and Southport, May 12 and 17.

After examination of further material I am still of the opinion that it is better at present to treat the red-eyed vireo as a species distinct from its near relatives.

**Family COMPSOTHTYPIDAE**

**MNIOTILTA VARIA (Linnaeus): Black and White Warbler**

This interesting bird, of common occurrence, was recorded as follows: 8 miles southwest of Murphy, June 10; near Hayesville, June 28 (young bird, fully grown) and July 1 (adult male); 4,300 feet elevation on Three Tops Mountain, 2 miles southeast of Creston, July 13; Statesville, September 30; Clinton, April 29; Gliden, April 25; and South Mills, April 22.

**PROTONOTARIA CITREA (Boddaert): Prothonotary Warbler**

This beautiful swamp warbler is one of the most interesting birds of the lowland swamps. Specimens were taken at the following localities: Near the Pee Dee River, 11 miles east of Wadesboro, May 26 and 29; 7 miles southeast of Rockingham, May 30; near Roseboro, May 4 and 6; Gliden, April 26; the Dismal Swamp area 7 miles west of South Mills, April 18, 20 and 24; and Southport, May 12.

**VERMIVORA CHRYSOPTERA (Linnaeus): Golden-winged Warbler**

A male was taken at Roseboro, May 5, and another at 4,300 feet on Three Tops Mountain, 2 miles southeast of Creston, July 13. The species was recorded near Hayesville, June 28 and 29.

**VERMIVORA PINUS (Linnaeus): Blue-winged Warbler**

An adult male was collected on Hogan Creek, 7 miles northeast of Reidsville, September 26.

**VERMIVORA PEREGRINA (Wilson): Tennessee Warbler**

Taken at Reidsville on September 18 and on the Catawba River 10 miles southwest of Statesville on October 4, 6, and 7.

## COMPSOTHTYLPIS AMERICANA PUSILLA (Wilson): Northern Parula Warbler

An immature female taken on Hogan Creek, 7 miles northeast of Reidsville, on September 18, with a wing measurement of 58 mm., and a male taken at Engelhard on October 16, with the wing 62.6 mm., belong to the northern form.

## COMPSOTHTYLPIS AMERICANA AMERICANA (Linnaeus): Southern Parula Warbler

Aside from slight difference in size (the northern bird has a slightly longer wing and a smaller bill) the characters that have been used to separate the northern and southern forms of the parula warbler appear variable. In the series at hand from North Carolina all are considered *americana* on the basis of size except the two *pusilla* listed above. In the series of *americana* two males from South Mills, taken on April 19 and 20, and one from Gliden, collected on April 25, agree in indefinite chest band, and so carry what has often been considered the chief character of the southern form. However, males shot at Southport on May 12 and on Smith Island on May 21, evidently breeding birds, have heavily marked breast bands, the band in the latter bird especially being broad and heavy. Two males from Murphy taken on June 13 and 16 and one from 3,500 feet elevation 12 miles east of Hayesville likewise have well-marked chest bands though small in size. Females were taken at Clinton on April 29. In fall, a female was taken on Hogan Creek 7 miles northeast of Reidsville on September 26.

Measurements of the North Carolina birds are as follows: Males (8 specimens), wing 56.2–57.9, tail 38.3–41.6, culmen from base 11.7–12.8, tarsus 15.3–17.6 mm.

Females (5 specimens), wing 52.1–55.9, tail 37.7–43.3, culmen from base 11.6–12.3, tarsus 15.4–16.3 mm.

## DENDROICA AESTIVA AESTIVA (Gmelin): Eastern Yellow Warbler

Near Murphy these birds were fairly common in June, two males being taken on June 9.

## DENDROICA MAGNOLIA (Wilson): Magnolia Warbler

Specimens were taken at Reidsville, September 29; on the Catawba River near Catawba, September 28 and 30; and 7 miles west of Statesville, September 30.

## DENDROICA TIGRINA (Gmelin): Cape May Warbler

Four were seen and one taken at the Catawba River near Catawba, October 5.

**DENDROICA CAERULESCENS CAERULESCENS (Gmelin): Black-throated Blue Warbler**

Migrant examples of the northern subspecies were collected as follows: Roseboro and Clinton, May 4; Madison, September 21; and Statesville, October 4.

**DENDROICA CAERULESCENS CAIRNSI Coues: Cairns's Warbler**

It is of especial interest to record a male of this race taken in migration 3 miles southwest of Clinton, on May 1. In the mountain breeding grounds specimens were collected as follows: 3,500 to 3,700 feet elevation 12 miles east of Hayesville, June 27 and 29; 4,500 to 5,200 feet on Rocky Ridge, 12 miles west of Franklin, June 21 and 22, and 5,000 feet on Rocky Bald, 13 miles west of the same town, June 23; 5,500 feet on Elk Knob, 7 miles north of Boone, July 10; and 3,800 to 4,300 on Bluff Mountain 4 miles west of West Jefferson, July 15.

**DENDROICA CORONATA CORONATA (Linnaeus): Myrtle Warbler**

In spring migrants were collected at South Mills, April 14 and 15; Roseboro, May 2; and Clinton, May 3. In the fall migration three were recorded and one was taken on the Catawba River, 10 miles southwest of Statesville, on October 5. Others were secured at Stumpy Point, October 23; Bethel, November 2; and Davis, November 18.

**DENDROICA VIRENS VIRENS (Gmelin): Black-throated Green Warbler**

An adult male was taken 9 miles north of Southport on May 18. This bird in larger bill resembles those of the north and must be considered a belated migrant.

**DENDROICA VIRENS WAYNEI Bangs: Wayne's Warbler**

On May 4 the first of these birds was taken 3 miles west of Roseboro, a male marked by small bill and slightly darker dorsal coloration. Male and female were taken 6 and 9 miles north of Southport on May 17 and 19. Apparently this race extends across to the mountains in North Carolina, as a male taken at 4,300 feet on Bluff Mountain, 4 miles west of West Jefferson, on July 15, 1939, agrees with the birds from the coastal area in the characters indicated.

**DENDROICA FUSCA (Müller): Blackburnian Warbler**

This interesting bird was taken in the breeding season at 5,000 feet on Rocky Bald, 13 miles west of Franklin, on June 23, at 4,100 feet on Standing Indian Mountain, 15 miles east of Hayesville, on



July 1, and at 4,000 feet near Highlands on July 5. A migrant was shot at Catawba on October 5.

**DENDROICA DOMINICA DOMINICA** (Linnaeus): Yellow-throated Warbler

Localities for this handsome warbler are as follows: Pee Dee River, 11 miles east of Wadesboro, May 27 and 29; Roseboro, May 6; South Mills, April 18; Gliden, April 25 and 26; and Southport, May 10, 11, and 16. All these show more or less yellow in the anterior part of the superciliary, though in birds in worn plumage this may become very faint.

**DENDROICA PENNSYLVANICA** (Linnaeus): Chestnut-sided Warbler

This warbler was found during the summer in the mountains at the following localities: 3,500 to 3,700 feet elevation in Clay County, 12 miles east of Hayesville, June 27 to 29; 5,100 feet on Rocky Bald, 12 miles west of Franklin, June 20; and 5,200 to 5,500 feet on Elk Knob, 7 miles north of Boone, July 10 and 17. Fully grown immature specimens were collected on Three Tops Mountain, 2 miles southeast of Creston, on July 13, and one was taken in fall migration near Madison, Rockingham County, on September 21.

**DENDROICA CASTANEA** (Wilson): Bay-breasted Warbler

One was taken and others were seen along the Catawba River, 10 miles southwest of Statesville, on October 4.

**DENDROICA PINUS PINUS** (Wilson): Northern Pine Warbler

Records for this widely distributed resident warbler are as follows: Statesville, October 9; Wadesboro, May 27; Rockingham, May 30; Reidsville, September 22; Clinton, May 3 (including a bird recently from the nest); Roseboro, May 4; Greenville, November 8; Engelhard, October 16; Beaufort, November 20; Southport, May 10; and Smith Island, May 22.

**DENDROICA DISCOLOR DISCOLOR** (Vieillot): Northern Prairie Warbler

The small series obtained comes from the following localities: At 1,450 feet elevation, 8 miles southwest of Murphy, June 12; Anson County, 11 miles east of Wadesboro, May 26; near Clinton, May 4; Sunbury, April 19 and 21; Southport, May 12 and 15; and Smith Island, May 22.

**DENDROICA PALMARUM PALMARUM** (Gmelin): Western Palm Warbler

Three were taken at Reidsville, September 25, Statesville, October 9, and Stumpy Point, October 27. Curiously enough all are the

western form which is supposed to be of casual occurrence in the State.

**SEIURUS AUROCAPILLUS (Linnaeus): Ovenbird**

Spring and summer specimens were taken at Gliden, April 25; Clinton, May 3; Murphy, June 7 and 12; and Hayesville, June 29. In fall this species was collected at Reidsville on September 25 and on the Catawba River west of Statesville on October 4 and 9.

**SEIURUS NOVEBORACENSIS NOVEBORACENSIS (Gmelin): Northern Water-thrush**

Taken in spring near Clinton on May 8, and in fall on Hogan Creek, 7 miles northeast of Reidsville, on September 26.

**SEIURUS NOVEBORACENSIS NOTABILIS (Ridgway): Grinnell's Water-thrush**

An immature male was taken on Hogan Creek, 7 miles northeast of Reidsville, on September 18. This bird is distinctly more sooty gray, less brownish above, and lighter below. The wing measures 75.3 mm.

**SEIURUS MOTACILLA (Vieillot): Louisiana Water-thrush**

Two were collected at Gliden on April 25. At Clinton one was taken on May 1 and at Rockingham one on June 1. An interesting record is of one shot at 5,000 feet on Rocky Ridge, 13 miles west of Franklin, on June 22. These birds were recorded also near Hayesville, June 29 and 30 and July 4; near Baldwin, July 13; and near West Jefferson, July 14.

**OPORORNIS FORMOSUS (Wilson): Kentucky Warbler**

This handsome species was taken at Clinton and Roseboro on May 4 and 6 miles southwest of Murphy on June 15.

**OPORORNIS AGILIS (Wilson): Connecticut Warbler**

To the small number of records of this species for North Carolina there is added an immature male secured on the Catawba River, 10 miles southwest of Statesville, on October 4.

**GEOTHLYPIS TRICHAS BRACHIDACTYLA (Swainson): Northern Yellowthroat**

Breeding birds referred to this form come from the high area in the west. Two males and a female from 8 miles southwest of Murphy, at 1,450 feet, taken on June 8, 9, and 10, agree with this form, as does a male from 2,200 feet 7 miles west of Franklin, collected on July 4, and a male from 4,600 feet on Three Tops Mountain, 2 miles southeast of Creston, July 13. I have also a male sent to me by Dr. J. J. Murray

from 3,700 feet at Blowing Rock, shot on August 8, 1940. In spring, migrants were obtained at South Mills on April 14 and at Roseboro on May 4. Fall specimens were taken on the Catawba River near Catawba, September 29, and west of Statesville, October 2, 3, and 5. A male from Williston, taken on November 16, is apparently nearest this race in color though small, as the wing measures 51.2 mm. only.

It appears that this form nests throughout western North Carolina and that it is state-wide in occurrence in migration.

**GEOTHYLPIIS TRICHAS TRICHAS (Linnaeus): Maryland Yellowthroat**

This race apparently occurs in North Carolina only as a migrant though it may breed near the coast in the extreme northeast, since Duvall<sup>29</sup> records one from near Pungo in southeastern Virginia.

It is the smallest of those found here in wing measurement, and it has the flanks more grayish, less brownish like the northern yellowthroat (*Geothlypis t. brachidactyla*).

In the series at hand there are two females ascribed to this race taken in the Dismal Swamp area 7 miles west of South Mills, April 17 (wing 48.8 mm.); and near Sunbury, April 22 (wing 49.5 mm.). It is probable that this subspecies may be found to be the breeding form somewhere along the northern boundary of the State.

**GEOTHYLPIIS TRICHAS TYPHICOLA Burleigh<sup>30</sup>: Athens Yellowthroat**

This race, an intermediate between *Geothlypis t. ignota* of farther south and *trichas*, is marked by darker, browner coloration of back and flanks, though not so dark as *ignota*. Though definitely an intermediate it seems to occupy a wide enough range from Georgia to southeastern Virginia to warrant recognition. In North Carolina it is found as the breeding bird of the Coastal Plain, extending back over the eastern section of the Piedmont. Birds from much of this area are not so dark as those from farther south and tend to range a little small, but they are too dark to be considered *trichas*.

Two males and a female from near Southport, May 15 and 17, are fairly typical in size and color. Of two taken near Roseboro on May 2 and 6, one is fairly typical and the other somewhat light in color. A pair secured 11 miles east of Wadesboro on May 26 are definitely intermediate both in size and color.

Two males and two females, all immature, taken on Hogan Creek, 7 miles northeast of Reidsville, September 18, 19, and 22, have the size of *trichas* but appear very dark, so that they are allocated as inter-

<sup>29</sup> Auk, 1937, p. 461.

<sup>30</sup> *Geothlypis trichas typhicola* Burleigh, Proc. Biol. Soc. Washington, vol. 47, Feb. 9, 1934, p. 21 (Athens, Ga.).

mediates under this name. More of these birds should be collected in this area in the breeding season to check their identity.

Other fall specimens were obtained at Engelhard, October 14 and 20, and Morehead City, November 22.

**ICTERIA VIRENS VIRENS (Linnaeus): Yellow-breasted Chat**

Of this elusive species skins come from Southport, May 11; Wadesboro, May 27; Murphy (9 miles southwest), June 14; and 3,200 feet elevation, 3 miles west of West Jefferson, July 14.

**WILSONIA CITRINA (Boddaert): Hooded Warbler**

Recorded from Murphy, June 7 and 12; 3,700 feet elevation, 12 miles east of Hayesville, June 29; Wadesboro, May 27; Rockingham, June 1; Reidsville, September 18; Clinton, April 29; South Mills, April 17; and Southport, May 16. Females in this series show interesting variation in the amount of black present on the forepart of the body, ranging from one with the faintest of darkened yellow on the foreneck, with a slight edging of dusky on the auricular region, to birds with the center and posterior part of the crown extensively black and the breast plain, or with the black much reduced on the crown but extended as a smudged band or necklace across the foreneck and upper breast.

**WILSONIA CANADENSIS (Linnaeus): Canada Warbler**

This mountain breeding bird was taken at 4,500 feet elevation on Rocky Ridge, June 21, and at 5,100 feet on Rocky Bald, June 20, both localities being in Macon County, 12 to 13 miles west of Franklin. Others were secured at 5,500 feet on Elk Knob, 7 miles north of Boone July 10, and at 4,600 feet on Three Tops Mountain, 2 miles southeast of Creston, on July 13, the latter being a fully grown immature individual.

**SETOPHAGA RUTICILLA (Linnaeus): Redstart**

In spring this alert warbler was taken at South Mills on April 19 and 24, near Clinton on May 3, and at Roseboro on May 5. A summer male shot 11 miles east of Wadesboro in Anson County, May 26, has an exceptionally large orange wing spot. Individuals were seen but not taken 12 miles east of Hayesville on July 4 and near West Jefferson on July 14. Fall specimens were obtained at Reidsville on September 22 and 25 and on the Catawba River west of Statesville on September 30 and October 3.

## Family ICTERIDAE

*DOLICHONYX ORYZIVORUS* (Linnaeus): Bobolink

The only specimen taken was shot 8 miles southwest of Stumpy Point, Dare County, on October 24, an unusually late date.

*STURNELLA MAGNA ARGUTULA* Bangs: Southern Meadowlark

The series obtained during the present work was collected either along the southern border of North Carolina or on the Coastal Plain. All are the southern form.

During the breeding season birds were obtained 7 miles southeast of Rockingham, May 31; near Southport, May 12, 15, and 16; and near the Dismal Swamp 7 miles west of South Mills, April 19. The latter, a male, has the wing 115.2 mm. and is especially dark and richly colored. The fall series also represents the southern form, including specimens from the Catawba River near Catawba, October 6; Stumpy Point, October 27; Beaufort, November 15 and 17; and Marshallberg, November 23. Two from Beaufort listed above are somewhat intermediate but are nearer the southern form, which apparently may winter in the coastal area.

*AGELAIUS PHOENICEUS PHOENICEUS* (Linnaeus): Eastern Red-wing

In the small series obtained breeding individuals come from Southport, May 10, 17, and 18, and Smith Island, May 20. Fall specimens were collected at Engelhard, October 16, 18, and 24, and Williston, November 17.

*ICTERUS SPURIUS* (Linnaeus): Orchard Oriole

A second-year male comes from Southport, taken on May 18. It has a small spot of chestnut in the center of the breast.

*CASSIDIX MEXICANUS MAJOR* (Vieillot): Boat-tailed Grackle

Skins of the "jackdaw" come from Southport, May 10 and 18; Smith Island, May 13 and 20; and 6 miles northeast of Beaufort, November 14. Individuals were seen at Marshallberg on November 23 and Atlantic on November 25. I have recorded them on various occasions on Roanoke Island and near Nags Head and Kitty Hawk. The tips of the bills in two summer males show an interesting condition in which the ramphotheca on the premaxilla (upper mandible) has been worn away for a distance of about 7 mm., so that this part of the bill tip has been much narrowed, back of this it being normal. Two females taken at the same season exhibit this condition to a lesser degree. Obviously this is due to some feeding habit at the area where these birds were obtained, perhaps to eating clams or other shellfish. Three females taken in fall near Beaufort do not show this wear.

The subspecific status and nomenclature of the eastern grackles of this group seem at present so uncertain that after some consideration I have listed these birds as *major*. Without going into unnecessary detail here I may add that the bird of Florida has been described by Alexander Sprunt, Jr., as a separate race *westoni*,<sup>31</sup> while almost simultaneously the bird from Delaware to Florida was named by Francis Harper as *torreyi*.<sup>32</sup> Lowery<sup>33</sup> tentatively recognizes both forms, though acknowledging that this is debatable. After examination of the highly unsatisfactory series of these birds in the National Museum I cannot make out the characters alleged for either and feel that further study is required to determine whether the eastern group differs from that of Louisiana. The question of difference in eye color must be decided by further field investigations.

**QUISCALUS QUISCALUS STONEI** Chapman<sup>34</sup>: Purple Grackle

A male taken in the Dismal Swamp, 7 miles west of South Mills, on April 18 is referred to this form in accordance with Dr. Frank M. Chapman's modern studies of this interesting group of birds. Two other forms should occur in North Carolina.

Family **THRAUPIDAE**

**PIRANGA ERYTHROMELAS** Vieillot: Scarlet Tanager

Birds were secured in summer in the mountain area of western North Carolina as follows: 1,450 feet altitude 8 miles southwest of Murphy, June 12 and 13; 3,700 feet 12 miles east of Hayesville, June 30; 4,100 feet on Standing Indian Mountain, 15 miles east of Hayesville, July 1; and 4,700 feet on Three Tops Mountain, 2 miles southeast of Creston, July 13. The species was seen on Pack Mountain in Cherokee County, June 7; on Rocky Ridge, Franklin County, June 22; near Highlands, July 6; and on Elk Knob, Watauga County, July 17 and 18. Migrants were taken in Reidsville on September 23 and on the Catawba River west of Statesville on October 4.

**PIRANGA RUBRA RUBRA** (Linnaeus): Summer Tanager

Records for this bird are as follows: Wadesboro, May 26; Rockingham, May 30; Gliden, April 25; Clinton, May 1 and 3; and Southport, May 10. On June 6 Perrygo recorded three on Pack Mountain above Pack Mountain Gap, Cherokee County.

<sup>31</sup> *Cassidix mexicanus westoni* Sprunt, Charleston Mus. Leaflet No. 6, Feb. 24, 1934 (St. Johns River Marshes, Indian River County, Fla.).

<sup>32</sup> *Cassidix major torreyi* Harper, Proc. Acad. Nat. Sci. Philadelphia, vol. 85, Mar. 8, 1934, p. 1 (Chincoteague, Va.).

<sup>33</sup> Occ. Papers Mus. Zool. Louisiana State Univ., No. 1, May 4, 1938, p. 6.

<sup>34</sup> *Quiscalus quiscula stonei* Chapman, Auk, 1935, p. 25 (Lakhurst, N. J.).



## Family FRINGILLIDAE

**RICHMONDENA CARDINALIS CARDINALIS** (Linnaeus): Eastern Cardinal

The attractive cardinal ranges widely in North Carolina, as the following records will indicate: 8 miles southwest of Murphy, June 12; 3,200 feet elevation, 9 miles west of Franklin, July 4; 3,200 feet near West Jefferson, July 14; near Wadesboro, May 27; Catawba River north of Catawba, September 29, and west of Statesville, October 2 and 4; Reidsville, September 18 and 22; Madison, September 21; Clinton, May 4; South Mills, April 15 and 21; Southport, May 12; and Smith Island, May 22.

**HEDYMELES LUDOVICIANUS** (Linnaeus): Rose-breasted Grosbeak

On Rocky Bald and Rocky Ridge, 12 and 13 miles west of Franklin, rose-breasted grosbeaks were common, specimens being taken on June 20, 21, and 22. East of Hayesville several were recorded at 3,500 feet and above on June 27 to 30, and four were seen on July 1, at 4,100 feet on Standing Indian Mountain. Three were recorded near Highlands on July 5. Three were collected 7 miles north of Boone on Elk Knob at 4,800 to 5,100 feet on July 11, 17, and 18. In fall, one was secured near Reidsville on September 19, and one was recorded near Statesville on October 9.

On careful comparison of the breeding birds from this southern area with excellent series from the north there is indication that the species is uniform throughout its extensive breeding range.

**PASSERINA CYANEA** (Linnaeus): Indigo Bunting

Specimens come from Murphy, June 10; 2,200 feet elevation 7 miles west of Franklin, July 4; 4,800 feet on Elk Knob, 7 miles north of Boone, July 11 and 12; near Longisland, October 6; Wadesboro, May 26 and 27; and Reidsville, September 22 and 25.

**PASSERINA CIRIS CIRIS** (Linnaeus): Eastern Painted Bunting

Near Southport three were seen and a male taken on May 11. Others were obtained on Smith Island, where the species was abundant, on May 13, 20, and 22.

Comparison of a good series indicates clearly that there are two geographic races of this handsome species instead of the one included in the fourth edition of the A. O. U. Check-list. The western form, *C. s. pallidior*, is lighter colored in the male and lighter and somewhat grayer in the female.

Measurements of birds obtained in North Carolina are as follows: Males, wing 67.1, 67.9, 69.6, tail 50.9, 51.0, 51.1, culmen from base

11.4, 11.6, 12.1, tarsus 18.0, 18.5, 19.6 mm. Females, wing 63.7, 64.7, 65.5, tail, 50.4, 50.8, 51.4, culmen from base 11.0, 11.5, 12.0, tarsus 18.4, 18.5, 19.1 mm.

**SPINUS TRISTIS TRISTIS** (Linnaeus): Eastern Goldfinch

In the mountain region the goldfinch was obtained near Murphy on June 9 and 15, in the vicinity of Hayesville on June 30, on Elk Knob north of Boone on July 18, and near West Jefferson on July 14. A winter bird was collected at Williston on November 16. The species was recorded near Reidsville on September 19, 22, and 23.

**PIPILO ERYTHROPHthalmus ERYTHROPHthalmus** (Linnaeus): Red-eyed Towhee

With three forms of the towhee represented in the series of skins secured in 1939, it is obvious that there is much to be done in determining ranges and occurrence of this species in North Carolina. The typical form is marked by larger size, reddish-brown eye, deeper brown on the sides and flanks, and large size of the white spot on the end of the outer tail feather. The wing in five males in the present series ranges from 82.0 to 86.4 mm. and in five females from 75.7 to 81.8 mm.

Specimens allotted to this race include birds taken in the Dismal Swamp area 7 miles west of South Mills, April 17 and 18; about 3 miles southwest of Clinton, May 1; about 3 miles northeast of Roseboro, May 2; and 4,800 feet elevation on Elk Knob, 7 miles north of Boone, June 10 and 11. Fall specimens include one from Hogan Creek, 7 miles northeast of Reidsville, September 22; one from the Catawba River 7 miles west of Statesville, October 3; and two secured at Stumpy Point, October 17 and 21. The bird from Statesville may be a migrant, while the two from Stumpy Point certainly are in that category.

**PIPILO ERYTHROPHthalmus CANASTER** Howell: Alabama Towhee

This race has a reddish-brown eye, and is about equivalent in size to *P. e. erythrophthalmus*, but has the tail spot smaller and the brown of the sides and flanks paler. Males taken 8 miles southwest of Murphy, June 12, and at 5,100 feet on Rocky Bald, 12 miles west of Franklin, agree with this form, though the tail spots, measuring 34 and 35 mm., are a little large. It is expected that this bird will be found elsewhere along the western border of the State, as it occurs in adjacent sections of Tennessee.

**PIPILO ERYTHROPHthalmus ALLENI** Coues: White-eyed Towhee

That towhees with light-colored eyes are found in the southeastern coastal region of North Carolina is well known, the present mate-

rial indicating that they range more widely than anticipated. The birds here come in contact with the true red-eyed towhee, *P. e. erythrophthalmus*, and show intergradation in some individuals through variation in the light color of the eyes and in larger size, as well as in the extent of the white tip on the outer rectrix, which is much restricted in typical *alleni*.

The name to be applied to these light-eyed birds may be subject to some question, but to me it appears better, for the present at least, to call them *alleni*, on the basis principally of the light-colored eye. Burleigh<sup>35</sup> has identified these coastal birds of North Carolina as *canaster* and has written me that he considers this to be the proper name to be applied to them. *P. e. canaster* at best is an intergrade toward *alleni* as indicated by the reduced white on the outer rectrices. Its principal definite peculiarity is in the paler brown of the sides and flanks. The iris is red like that of *erythrophthalmus*, though where *canaster* reaches *alleni* in the south we may expect paler-eyed birds. It hardly seems to me desirable to place the coastal birds with light eyes and dark brown flanks and sides with *canaster*, as in so doing we use this name for birds with two definite characters of another race.

It may be added that apparently it is this intermediate white-eyed group here allocated under *alleni* that Koelz recently has named *rileyi* from the coast of Georgia.<sup>36</sup> I do not feel, however, that this group of intermediates can be properly segregated under a distinct name without more evidence.

At Southport this is the breeding form, specimens being taken on May 11 and 18. Three males, with wing measurements of 80.3, 82.3, and 85.8 mm., average a little large but have the white tips on the tail small. A female is nearly typical, as the wing measures 72.4 mm., and the forepart of the body has a definitely grayish cast. It was somewhat of a surprise to get light-eyed towhees 7 miles southeast of Rockingham in Richmond County, indicating the influence of the southern bird coming in from the south along the valley of the Pee Dee River. These birds are a little large, a male having the wing 85.0 and a female 83.0 mm., but the white on the tail is not extensive and the female is distinctly dark and grayish. Though not typical they are definitely to be placed with *alleni*. It was also unexpected to find this same intermediate type of bird near Greenville on November 4 and 9, four males having definitely light eyes though averaging a little large, with the white on the tail more extensive. Wing measurements range from 80.1 to 89.3 mm. Other

<sup>35</sup> Auk, 1937, p. 459.

<sup>36</sup> *Pipilo alleni rileyi* Koelz, Proc. Biol. Soc. Washington, vol. 52, July 22, 1939, p. 121 (Brunswick, Ga.).

fall birds were taken at Engelhard on October 20, Mansfield on November 16, and Morehead City on November 24.

**PASSERCULUS SANDWICHENSIS SAVANNA (Wilson): Eastern Savannah Sparrow**

This common wintering bird from the north was taken in spring near Weeksville on April 27. There are also two in the National Museum that I collected near Manteo on Roanoke Island on April 21, 1935.

In fall Perrygo found this race common, mainly in the coastal area, specimens being taken as follows: Engelhard, October 23; Stumpy Point, October 20, 21, 23 and 27; Lake Landing, near Lake Mattamuskeet, October 28; Fairfield, October 28; Greenville, November 6; near Beaufort, November 14 and 15; Williston, November 16 and 17; Morehead City, November 22; Marshallberg, November 23; and Atlantic, November 25. There is some variation toward *labradorius* in occasional specimens in this series.

**PASSERCULUS SANDWICHENSIS LABRADORIUS Howe: Labrador Savannah Sparrow**

This very darkly colored northern subspecies does not seem to have been reported previously from North Carolina, but its occurrence as a migrant is to be expected. The present collection contains seven specimens taken as follows: Engelhard, October 13; Stumpy Point, October 27; Greenville, November 6; about 6 miles northeast of Beaufort, November 14 and 15; and near Atlantic, November 25. Some of these are somewhat intermediate toward *P. s. savanna*. It will be interesting to learn more of the occurrence of this race whose characters have not until recently been fully understood.

There is still another form, *Passerculus sandwichensis oblitus*, that has been recorded from the State, a race marked by gray color with a reduction of brown, of which Perrygo did not obtain samples.

**AMMOSPIZA CAUDACUTA CAUDACUTA (Gmelin): Sharp-tailed Sparrow**

Specimens were obtained at Beaufort on November 14 and 15.

**AMMOSPIZA CAUDACUTA DIVERSA (Bishop): Southern Sharp-tailed Sparrow**

One was collected near Beaufort on November 17. This race, described by Bishop<sup>37</sup> from Roanoke Island though not recognized in the fourth edition of the A. O. U. Check-list, is easily told from other races by its definitely darker coloration above. Below the sides and breast are heavily streaked. It breeds from North Carolina north to Maryland.

<sup>37</sup> *Ammodramus caudacutus diversus* Bishop, Auk, 1901, p. 269 (Wanchese, Roanoke Island, N. C.).

**AMMOSPIZA CAUDACUTA NELSONI** (Allen): Nelson's Sparrow

Near Southport specimens were secured on May 10 and 17, the late dates being interesting in view of the long migration that this race makes to its interior nesting grounds. One of the skins taken on May 10 is very slightly paler than the others and shows some approach to the intermediate type that Todd has recently described under the name *altera*. In fall, one was shot 6 miles northeast of Beaufort on November 14, an indication that Nelson's sparrow may possibly winter in the coastal area.

**POOECETES GRAMINEUS GRAMINEUS** (Gmelin): Eastern Vesper Sparrow

At 4,500 feet elevation on Elk Knob, 7 miles north of Boone, these sparrows were taken on July 17, 18, and 19. One was collected near Engellhard on October 24. On June 9, 1917, I observed two between Grove Hill and Warrenton, near the highway.

**CHONDESTES GRAMMACUS STRIGATUS** Swainson: Western Lark Sparrow

On October 23 an immature female was taken 8 miles southwest of Stumpy Point in Dare County. This stray from the west may be identified at a glance by its pale dorsal color with restricted black streaks and the light shade of brown on cheeks and forecrown.

**AIMOPHILA AESTIVALIS BACHMANI** (Audubon): Bachman's Sparrow

Near Southport three specimens were taken on May 12 and 15.

**JUNCO HYEMALIS HYEMALIS** (Linnaeus): Slate-colored Junco

An abundant winter resident. In fall the first one was taken at Stumpy Point on October 17. Others were secured at Greenville on November 6 and at Morehead City on November 24.

**JUNCO HYEMALIS CAROLINENSIS** Brewster: Carolina Junco

Near Franklin these juncos were taken on Rocky Bald at 5,000 and 5,100 feet on June 20 and 23, the specimen on the latter date being a fully grown juvenile. They were seen at 4,500 and 5,000 feet on Rocky Ridge in this same region on June 21 and 23. Others were recorded near Hayesville at 3,500 and 3,700 feet on June 27 and 30 and at 4,100 feet on Standing Indian Mountain on July 1. An adult female was collected at 4,000 feet near Highlands on July 5, and other specimens were secured at 4,800 to 5,500 feet on Elk Knob near Boone on July 10 and 11.

**SPIZELLA PASSERINA PASSERINA (Bechstein): Eastern Chipping Sparrow**

The quiet but attractive chipping sparrow is represented by specimens as follows: Murphy, June 9 and 10; Wadesboro, May 26 and 27; Reidsville, September 22; Raleigh, May 8; Roseboro, May 2; Clinton, May 3; and Southport, May 18.

**SPIZELLA PUSILLA PUSILLA (Wilson): Eastern Field Sparrow**

The specimens of this widely distributed bird as expected all pertain to the typical form. Records are as follows: Murphy, June 10; near Hayesville (juvenile), June 27; Bluff Mountain, 4 miles west of West Jefferson, July 15; Statesville, October 3 and 4; Wadesboro, May 27; Rockingham, May 31; Reidsville, September 25; Greenville, November 9; Engelhard, October 23; and South Mills, April 17 and 18.

**ZONOTRICHIA ALBICOLLIS (Gmelin): White-throated Sparrow**

In spring the white-throat was taken at South Mills on April 18, near Weeksville on April 27, at Clinton on May 3, and in the vicinity of Roseboro on May 6. The fall migration began with one secured on October 7 on the Catawba River 10 miles southwest of Statesville. Others were obtained at Greenville, November 6 and 8, and Morehead City, November 24.

**PASSERELLA ILIACA ILIACA (Merrem): Eastern Fox Sparrow**

This fox sparrow, migrant from the north, was taken near Greenville on November 6 and was seen in the same locality on November 10.

**MELOSPIZA LINCOLNI LINCOLNI (Audubon): Lincoln's Sparrow**

In the edge of the Dismal Swamp, 7 miles west of South Mills, an adult female was collected on April 14. One was observed near Sunbury in Gates County on April 19. An immature female was shot on Troublesome Creek, 7 miles south of Reidsville, on September 23.

**MELOSPIZA GEORGIANA GEORGIANA (Latham): Eastern Swamp Sparrow**

Swamp sparrows were taken in spring near South Mills on April 17 and 18 and were seen near Sunbury on April 19. In fall they were common at Engelhard by October 17, specimens being taken on that date and on October 18 and 20. Others were obtained at Stumpy Point, October 21; Lake Landing, October 28; Greenville, November



6; Beaufort, November 15; Williston, November 16 and 21; and Atlantic, November 25.

All specimens examined are of the darker eastern race. Recently,<sup>33</sup> in another connection, I discussed the eastern and western forms of this bird and indicated that in my opinion both should be recognized.

**MELOSPIZA MELODIA MELODIA** (Wilson): Eastern Song Sparrow

The typical eastern song sparrow is a common migrant to North Carolina but is not known to nest within the State. Specimens taken by Perrygo and his assistants that are assigned to this race were obtained as follows: Catawba River, 7 miles west of Statesville, October 9; Fairfield, Hyde County, October 28; Engelhard, October 24; Greenville, November 6; Conetoe Creek, near Hassell, Martin County, November 4; near Beaufort, November 14 and 15; Bogue Island, near Morehead City, November 22; and Williston, November 16.

**MELOSPIZA MELODIA ATLANTICA** Todd: Atlantic Song Sparrow

An adult female was secured in Carteret County at the edge of the salt marshes 6 miles northeast of Beaufort on November 15. This race is easily distinguished by its more grayish dorsal coloration and by its heavier bill. It is the form that nests adjacent to the Atlantic beaches along the coast, and it does not range inland, being confined to those areas that feel the influence of salt water. The details of its coastal distribution and the extent (if any) to which it follows back along the shores of inlets and sounds away from the actual coast will be of interest.

**MELOSPIZA MELODIA EUPHONIA** Wetmore: Mississippi Song Sparrow

This is the breeding race of the elevated section of western North Carolina, a subspecies marked by darker dorsal color, and heavier, broader black and blackish markings above.

Perrygo recorded these birds at an elevation of only 1,450 feet along Persimmon Creek, 8 miles southwest of Murphy, June 8, 10, and 13, but did not collect specimens. At 3,500 feet, 12 miles east of Hayesville, three adults were taken on June 26 and a fully grown young bird on July 2. Farther north two were shot at 4,550 feet on Elk Knob, 7 miles north of Boone, on July 18, both being in juvenal plumage, and two more were taken at 3,200 feet near West Jefferson on July 14. On June 5, 1936, in company with J. J. Murray, I secured one at 2,800 feet on Big Helton Creek 1 mile east of Sturgills and another at 2,700 feet on Little Helton Creek 3 miles

<sup>33</sup> Proc. U. S. Nat. Mus., vol. 88, 1940, pp. 572-573.

east of the same place. Dr. Murray has sent me two from near Blowing Rock, one taken at 3,600 feet on August 5, 1937, on a tributary of the New River, and another shot at 3,400 feet 5 miles south of town near Bailey Camp on the head of the Yadkin River.

It is of particular interest to record specimens secured by Perrygo near Stumpy Point on October 17, near Engelhard on October 24, and near Greenville on November 6, since here they were migrants, away from the mountains.

**PLECTROPHENAX NIVALIS NIVALIS (Linnaeus): Eastern Snow Bunting**

On the beach 3 miles southeast of Marshallberg Perrygo shot two snow buntings and saw another on November 23. Two more were seen and one taken 6 miles northeast of Atlantic on November 25.

